



# APPENDIX A

## LIST OF TECHNICAL REPORTS

APPENDIX A  
LIST OF TECHNICAL REPORTS

US ROUTE 460 FINAL SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT



## **Appendix A      LIST OF TECHNICAL REPORTS**

### **A.1   2016 Technical Reports**

Archaeological Survey Report

Management Summary for Archaeological Survey

Supplemental Air Technical Report

Supplemental Alternatives Technical Report

Supplemental Natural Resources Technical Report

Supplemental Right-of-Way and Relocations Technical Report

Supplemental Traffic and Transportation Technical Report

### **A.2   2014 Technical Reports**

Aesthetics and Visual Quality Technical Memorandum

Air Quality Analysis Technical Report

Alternatives Technical Report

Archaeological Assessment

Architectural Survey

Hazardous Materials Technical Report

Natural Resource Technical Report

Noise Analysis Technical Report

Photointerpretation Mapping Report

Right of Way and Relocations Technical Report

Socioeconomics and Land Use Technical Report

Traffic and Transportation Technical Report





# APPENDIX B

## AGENCY COORDINATION

US ROUTE 460 FINAL SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT



## Appendix B AGENCY COORDINATION

As part of the outreach efforts involved in the development of this Supplemental Environmental Impact Statement (SEIS), the Federal Highway Administration (FHWA), the U.S. Army Corps of Engineers (USACE), and the Virginia Department of Transportation (VDOT) have participated in extensive coordination with federal, state, and local agencies, in addition to engaging in public involvement. The table below lists the agencies and correspondence that was received over the course of the environmental study, in order to support the development of the SEIS, which is captured as part of this appendix in the pages that follow. Additional details on the coordination efforts involved in this evaluation are described in **Chapter 7.0: Public and Agency Coordination**, in the SEIS.

ID No.	Agency	Summary of Correspondence	Correspondence Date
<b>FEDERAL AGENCIES</b>			
1	U.S. Department of the Interior, Fish and Wildlife Service	Cooperating Agency Decline	May 7, 2013
2	U.S. Environmental Protection Agency	Cooperating Agency Acceptance	May 30, 2014
3	U.S. Department of the Interior, Fish and Wildlife Service	Request for red-cockaded woodpecker habitat assessment report	January 28, 2016
<b>STATE AGENCIES</b>			
4	Virginia Department of Historic Resources	Concurrence with Revised East/West Termini	March 7, 2014
5	Virginia Department of Transportation	Notification to VDHR of SEIS Alternatives	June 2, 2014
6	Virginia Department of Historic Resources	Concurrence on VDOT's Survey Methodology for Alternative Alignments	June 25, 2014
7	Virginia Department of Transportation	Conveyance Letter to VDHR – Architectural Survey and VDHR Concurrence	July 3, 2014
8	Virginia Department of Transportation	Conveyance Letter to VDHR – Archaeological Assessment	July 22, 2014
9	Virginia Department of Historic Resources	Concurrence on Mt. Zion Cemetery	July 22, 2014
10	Virginia Department of Historic Resources	Acceptance of Archaeological Survey	August 25, 2014
11	Virginia Department of Historic Resources	Concurrence on Railroad Boundaries	September 2, 2014
12	Virginia Department of Forestry	Big Woods Timber Management	July 9, 2014
13	Virginia Department of Transportation	Conveyance Letter to VDHR – new Preferred Alternative	July 9, 2015
14	Virginia Department of Conservation and Recreation	Recommended northern long eared bat coordination with USFWS	December 18, 2015
15	Virginia Department of Transportation	Conveyance Letter to VDHR – seeking concurrence with Archeological findings and determination of effect for Architectural resources	January 12, 2016

ID No.	Agency	Summary of Correspondence	Correspondence Date
16	Virginia Department of Conservation and Recreation	Recommended northern long eared bat coordination with USFWS and recommended survey for robust baskettail, barking treefrog, and eastern big eared bat	January 19, 2016
17	Virginia Department of Historic Resources	Concurrence with Archeological findings and determination of effect for Architectural resources	February 12, 2016
18	Virginia Department of Transportation	Letter to USFWS regarding northern long-eared bat and providing red-cockaded woodpecker habitat assessment report	March 29, 2016
19	Virginia Department of Transportation	Letter to DGIF requesting comments on threatened and endangered species	March 29, 2016
20	Virginia Department of Transportation	Conveyance of Salamander and barking tree frog survey report to DGIF	April 5, 2016
21	Natural Resource Conservation Service	Conveyance Letter to NRCS – seeking new Farmland Conversion impact rating	April 12, 2016
<b>LOCAL AGENCIES</b>			
22	City of Suffolk	City of Suffolk Comments on SEIS Evaluation	February 4, 2014
23	Franklin – Southampton Department of Community Development	SEIS Comments	February 4, 2014
24	County of Isle of Wight, Planning and Zoning	SEIS Information Request	February 5, 2014
25	Prince George County, Community Development	VDOT Comment Requests	February 20, 2014
26	Franklin – Southampton Department of Community Development Planning	SEIS Agenda Topics	April 17, 2014
27	Surry County	Surry County Response	May 6, 2014
28	City of Suffolk, Division of Planning	SEIS Comments	May 9, 2014

# APPENDIX C

## ACRONYMS

US ROUTE 460 FINAL SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT

## Appendix C      ACRONYM LIST

A&F	Agricultural and Forestal Districts
AADT	Annual Average Daily Traffic
AASHTO	American Association of State Highway and Transportation Officials
ACS	American Community Survey
ADT	Average Daily Traffic
APE	Area of Potential Effects
APMT	APM Terminal
AST	Aboveground Storage Tank
AWDT	Average Weekday Daily Traffic
BEA	U.S. Bureau of Economic Analysis
BGEPA	Bald and Golden Eagle Protection Act
BMPs	Best management practices
BRANK	Biodiversity-ranked
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CBA	Candidate Build Alternative
C-CAP	Coastal Change Analysis Program
CCB	Center for Conservation Biology
CEDAR	Comprehensive Environmental Data and Reporting
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CEQ	Council of Environmental Quality
CFR	Code of Federal Regulations
CIAs	Community Impact Assessments
CISE	Center for Invasive Species and Ecosystem Health
CLOMR	Conditional Letters of Map Revision
CMA	Coastal Management Area
CMF	Crash modification factors
CNE	Common noise environment
CO	Carbon monoxide
COVEOP	Commonwealth of Virginia Emergency Operations Plan
CTB	Commonwealth Transportation Board
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
CZMP	Coastal Zone Management Program
DCR	Virginia Department of Conservation and Recreation
DCR-DNH	Virginia Department of Conservation and Recreation-Natural Heritage Program
DEIS	Draft Environmental Impact Statement
DGIF	Virginia Department of Game and Inland Fisheries
DMME	Virginia Department of Mines, Minerals, and Energy
DMM	Division of Mineral Mining
DoD	Department of Defense
DSD	Development Services Districts
EDAS	Ecological Data Application System
EDSS	Early Detection and Distribution Mapping System
EFH	Essential fish habitat
EIS	Environmental Impact Statement
EJ	Environmental Justice
EO	Executive Order
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act

FAF	Freight Analysis Framework
FCI	Functional Capacity Index
FEMA	Federal Emergency Management Agency
FEIS	Final Environmental Impact Statement
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FPPA	Farmlands Protection Policy Act
FQAI	Floristic Quality Assessment Index
FY	Fiscal Year
GIS	Geographic Information Systems
HAZMAT	Hazardous material
HCM	Highway Capacity Manual
HGM	Hydgeomorphic
HHS	Department of Health and Human Services
HND	Highways for National Defense
HRTPO	Hampton Roads Transportation Planning Organization
HRBT	Hampton Roads Bridge Tunnel
HSM	Highway Safety Manual
HUC	Hydrological unit code
I-295	Interstate 295
IPaC	Information, Planning, and Conservation
ISTEA	Intermodal Surface Transportation Efficiency Act
LEDPA	Least Environmentally Damaging Practicable Alternative
LOD	Limit of Disturbance
LOMR	Letters of Map Revision
LOS	Level of service
L RTP	Long Range Transportation Plan
LUST	Leaking Underground Storage Tank
MBTA	Migratory Bird Treaty Act
mg/m <sup>3</sup>	Milligrams per cubic meter
MOVES	Motor Vehicle Emissions Simulator
mph	Miles per hour
MPO	Metropolitan planning organization
MSAT	Mobile Source Air Toxics
MVMT	Million Vehicle Miles Traveled
NAAQS	National Ambient Air Quality Standards
NAC	Noise Abatement Criteria
NATA	National Air Toxics Assessment
NC	North Carolina
NCHRP	National Cooperative Highway Research Program
NEPA	National Environmental Policy Act
NGVD	National Geodetic Vertical Datum
NHD	National Historic Database
NHPA	National Historic Preservation Act
NHS	National Highway System
NIT	Norfolk International Terminal
NLEB	Northern long-eared bat
NOAA	National Atmospheric and Atmospheric Administration
NO <sub>2</sub>	Nitrogen dioxide
NO <sub>x</sub>	Nitrogen oxides
NOI	Notice of Intent
NMFS	National Marine Fisheries Service

NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetland Inventory
O <sub>3</sub>	Ozone
PA	Programmatic Agreement
Pb	Lead
PCES	Project Cost Estimating System
PDC	Planning District Commissions
PEM	Palustrine Emergent
PFO	Palustrine Forested
PM	Particulate matter
PM <sub>2.5</sub>	Particulate matter with a diameter less than 2.5 micrometers
PM <sub>10</sub>	Particulate matter with a diameter less than 10 micrometers
PND	Ports for National Defense
POA	Points of assessment
POM	Polycyclic organic matter
Ppb	Parts per billion
Ppm	Parts per million
PPTA	Public-Private Transportation Act
PSS	Palustrine Scrub-Shrub
RCI	Reach Condition Index
RCRA	Resource Conservation and Recovery Act
RMA	Resource Management Area
ROD	Record of Decision
Route 10	U.S. Route 10
Route 460	U.S. Route 460
Route 58	U.S. Route 58
RPA	Resource Protection Area
SCU	Stream
SDDCTEA	Surface Deployment and Distribution Command Transportation Engineering Agency
SEIS	Supplemental Environmental Impact Statement
SF1	Summary File 1
SIP	State implementation plan
SHPO	State Historic Preservation Officer
SO <sub>2</sub>	Sulfur dioxide
SPCC	Spill Prevention Control and Countermeasure
STRAHNET	Strategic Highway Network
SWDA	Safe Water Drinking Act
SWPPP	Specific Stormwater Pollution Prevention Plan
SYIP	Six-Year Improvement Program
T&E	Threatened and endangered species
TIP	Transportation Improvement Program
TMDL	Total Maximum Daily Load
TNM	Traffic Noise Model
TRB	Transportation Research Board
TSM	Transportation System Management
TWLTL	Two-way left turn lane
USACE	United States Army Corps of Engineers
USCG	United States Coast Guard
USDA	United States Department of Agriculture
USDOT	United States Department of Transportation

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USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
USM	Unified Stream Methodology
UST	Underground Storage Tank
VA	Virginia
VAFWIS	Virginia Fish and Wildlife Information Service
VATraffic	Virginia Traffic Information Management System
VAUs	Visual assessment units
V-CRIS	Virginia Cultural Resources Information System
VDACS	Virginia Department of Agriculture and Consumer Services
VDEQ	Virginia Department of Environmental Quality
VDH	Virginia Department of Health
VDHR	Virginia Department of Historic Resources
VDOT	Virginia Department of Transportation
VEGIS	Virginia Environmental Geographic Information Systems
VGIN	Virginia Geographic Information Network
VHT	Vehicle hours traveled
VISWG	Virginia Invasive Species Working Group
VMRC	Virginia Marine Resources Commission
VMT	Vehicle Miles Traveled
VOC	Volatile organic compounds
VPA	Virginia Port Authority
VPDES	Virginia Pollutant Discharge Elimination System
VRP	Voluntary Remediation Program
VSMP	Virginia Stormwater Management Program
VTa	Virginia Transportation Act of 2000
WERMS	Wildlife Environmental Review Map Service
WNS	White-nose syndrome
WOUS	Waters of the United States
WQMP	Water Quality Management Plan
µg/m <sup>3</sup>	Micrograms per cubic meter ( )





# APPENDIX D

## RESPONSE TO COMMENTS

APPENDIX D  
RESPONSE TO COMMENTS

US ROUTE 460 FINAL SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT



## Appendix D DRAFT SEIS COMMENTS AND RESPONSES

The Virginia Department of Transportation (VDOT), in cooperation with the Federal Highway Administration (FHWA) and the United States Army Corps of Engineers (USACE) as joint lead federal agencies, prepared a Draft Supplemental Environmental Impact Statement (SEIS), pursuant to 23 CFR §771.130 and 40 CFR §1502.9(c), that was approved and made available for public review in September 2014. Following the issuance of the Draft SEIS, a 60-day public comment period began<sup>1</sup>, during which input and feedback from interested stakeholders were provided via hard copy, electronic survey, email, or verbal testimony. These stakeholders included individuals, special interest groups, government and regulatory agencies, non-profit organizations, religious institutions, elected officials, community organizations, and commercial entities.

As part of the public comment period, three open forum Location Public Hearings were conducted in October 2014. These public hearings offered interested individuals an opportunity to review and discuss the project and provide input. The Location Public Hearings utilized an open forum format, as described in Section 3.07 of VDOT's *Public Involvement Manual* (VDOT, 2015), in which graphic displays presented information about the alternatives and environmental considerations evaluated in the Draft SEIS. As part of the open forum format, no formal presentations were included at the Location Public Hearings. The meetings were staffed by a team of technical experts who were available to further explain the material presented and answer any questions from the attendees. The public was notified of the Location Public Hearings via local newspaper advertisements, media announcements, mass mailings, and the VDOT website.

At each of the Location Public Hearings and throughout the comment period, the public was asked to provide oral or written feedback, which was considered in the identification and refinement of the FHWA/VDOT Preferred Alternative, described in the Final SEIS. In November 2014, at the close of the comment period, 521 comments had been received including 262 hard copy comment sheets, 137 online surveys, 36 written or emailed narrative comments, 67 verbal testimonies, and 19 letters submitted from special interest groups or agencies. Comment sheets and online surveys included questionnaires used to quickly measure public and agency preferences and topics of concern. These forms also allowed for opportunity to provide narrative responses as well. Comments included support or opposition to all or portions of the Route 460 location study and the alternatives presented in the Draft SEIS, as well as questions regarding specific issues such as the types of improvements, needs considered, and potential natural and human environmental effects.

Prepared in accordance with 40 CFR §1503.4, this report is intended to assess and consider comments received on the Draft SEIS as well as provide responses to support the preparation of the Final SEIS. Comments were evaluated to determine if: modifications to alternatives or alternatives not previously considered should be evaluated; new information needed to be considered; analyses in the Draft SEIS needed to be supplemented, improved, or modified; or information presented in the Draft SEIS required correction. In order to provide adequate responses to the extensive comments received, VDOT, in collaboration with its federal partners, processed all of the comments received and categorized portions of each comment into three categories: 1) comments that do not require a response; 2) comments that do not

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<sup>1</sup> In accordance with 23 CFR §771.123(i), a draft environmental impact statement must be made publicly available for a period of not fewer than 45 days for the return of comments.

require a specific response, but rather a representative response is appropriate; and 3) comments requiring a specific response.

Representative responses to comments not requiring a specific response have been developed for the topical themes listed below. As necessary, additional responses for more specific comments were developed separately and are included under the appropriate theme.

- A. Purpose and Need
- B. Alternatives
- C. Environmental and Social Concerns
- D. Permitting
- E. Shirley T. Holland Intermodal Park / Norfolk Southern Access / Other Economic Development Issues
- F. Cost Benefits / Project Costs
- G. Funding Background
- H. Public Involvement / Outreach
- I. Additional Coordination or Analysis Requested / Questions on Documentation Validity / Miscellaneous Comments Requiring a Specific Response
- J. Miscellaneous Comments Not Requiring a Specific Response

For the purposes of categorizing and responding to comments, each commenter was assigned an identification number. Subsequently, portions of each commenter's entry were categorized according to the applicable themes. The entirety of each narrative comment received as well as how each comment was categorized, is included in **Attachment A**.

## A. Purpose and Need

**Summary of Comments:** A number of commenters discussed the Route 460 Project's identified Purpose and Need, defined in Chapter 1.0 of the Draft SEIS. In a number of cases, the comments submitted disagreed with the identified Purpose and Need; however, others affirmed these elements of need. Among the 27 comments regarding the Purpose and Need, some example comments included:

- 460 is not where your need is I95N/S, Hwy 58 and 264/64 is where you problem is: backup, wrecks, too many cars, cannot get out if need for evacuation.
- Not needed.
- Improving US Route 460 is very necessary.
- The “needs” as identified are inflated, especially when compared to other transportation needs / deficiencies in the area.
- The current 460 needs to be improved whether you build a new one or not. The purpose and need is flawed. Emergency evacuation capabilities are currently adequate, military connectivity is a far stretch for the team to make a case upon, and safety needed to be addressed on the current 460 30 years ago.
- The needs have not risen to the level justifying the cost and impact of the project.
- The current Route 460 is inadequate in regards to safety, evacuation, and increased traffic demands. This project clearly addresses all of these issues.
- ... if you want to find out what is pushing an unpopular project, follow the money. Forget evacuation, military traffic.

**Response:** As identified in **Chapter 1.0** of the Draft SEIS and reiterated in the Final SEIS, the overall purpose of the Route 460 improvements is to construct a facility that is consistent with the functional classification of the corridor, sufficiently addresses safety, mobility and evacuation needs, and sufficiently accommodates freight traffic along the Route 460 corridor. Support for such improvements is based on identified needs to address roadway deficiencies, improve safety, accommodate increasing freight traffic, reduce travel delay, provide adequate evacuation capability, improve strategic military connectivity, and support local economic development plans. Initially identified in the May 2005 Draft Environmental Impact Statement (EIS) for the Route 460 Location Study, these needs have been scrutinized by the FHWA and USACE in development of the Draft and Final SEIS and are supported by traffic and accident data and other information.

All of the Build Alternatives that were retained for analysis in the Draft SEIS were carried forward because they adequately met the Purpose and Need for the Route 460 improvements. Approved for location by the Virginia Commonwealth Transportation Board (CTB) in February 2015, the FHWA/VDOT Preferred Alternative was identified as the alternative that sufficiently meets the Purpose and Need and key project elements, while minimizing environmental impacts and providing cost effective benefits overall. The identification and development of the FHWA/VDOT Preferred Alternative is described in detail in **Chapter 2.0** of the Final SEIS.

While a number of comments referred to the overall Purpose and Need of the Route 460 improvements, a majority of comments regarding the Purpose and Need concentrated on specific elements of need, which can be separated into the four categories that are described in the sections that follow.

## A.1 Roadway Deficiencies

**Summary of Comments:** Supporting evidence for the identified need to address roadway deficiencies included insufficient geometric design based on current roadways of similar functional classification. Three comments received on the Draft SEIS specifically reiterated this need:

- The old road bed has many deficiencies that can be improved upon. The old road is a 1930's model and we need modern roadway.
- The current state of the road dates to the 1950's and it is overdue for improvement to meet current and future needs of the region and the commonwealth.
- ... the deficiencies on Route 460, being a four-lane, no median.

**Response:** *Route 460 in its current condition does not meet present VDOT design standards for lane width, median width, left turn lane protection, shoulder width, and clear zone protection. In addition, it also does not meet the recommended lane widths and level of access control identified in guidance manuals from the American Association of State Highway and Transportation Officials (AASHTO). Although Route 460 is classified as a rural principal arterial, it essentially functions as a local road. Arterials are intended to provide better traffic service than is available on local roads and streets, which primarily provide access to farms, residences, businesses, or other abutting properties. The substandard design and insufficient roadway functionality of Route 460 is described in detail in Section 1.3.1 of the Draft SEIS and Final SEIS. This substandard design in turn contributes to the other identified transportation needs of improving safety, reducing travel delays, accommodating the movement of increasing freight traffic, enhancing emergency evacuation and supporting military preparedness.*

*The FHWA/VDOT Preferred Alternative retained in the Final SEIS includes upgrades and improvements that would meet current VDOT design standards and provide better traffic service as intended by the functional roadway classification. Specifically, the FHWA/VDOT Preferred Alternative would have appropriately sized lanes, shoulders, and clear zones as well as managed access throughout the 16-mile improved section.*

## A.2 Safety

**Summary of Comments:** Safety in the Route 460 corridor was identified as one of the top concerns among the feedback received during the Draft SEIS public comment period and was referenced in 55 of the comments submitted. Among the safety considerations included in the Purpose and Need are roadway user safety and crash rates, as well as strategic military connectivity. Route 460 has a higher than average crash rate, compared to similar roadways with a four lane undivided cross section, due to the lack of median control and lack of clear zone with a four-lane undivided cross section. Numerous driveways and entrances increase crash potential. The crash fatality rate in the Route 460 corridor study area is 60 percent greater than the statewide average fatality rate of other undivided four-lane facilities with no access control. In addition, the fatality rate is 129 percent greater than four-lane divided roadways with partial access control. Many comments supported these identified elements of need. For example, a number of comments reference dangerous driving conditions along existing Route 460 that cause concern and illustrate a need for improvement. Other comments suggested that improvements would offer faster emergency response times as well as improve military preparedness and mobilization.

In order to address safety concerns in the corridor, some comments suggested focusing on specific spot improvements in order to reduce the estimated expenditures required to construct the project and minimize the extent of resource impacts. For example:

- In addressing safety concerns for this corridor, we believe more work needs to be done in this SEIS to identify those areas of particular safety concern and potential targeted improvements to address them—rather than the across-the-board approach being proposed—to help minimize impacts on communities, businesses, and historic resources in the corridor.

**Response:** *The roadway deficiencies along Route 460 contribute to dangerous operating conditions and safety concerns. Of the 380 crashes that occurred from 2010 to 2012 on Route 460, along the entire study corridor evaluated in the Draft SEIS, the fatality rate was substantially higher than that of comparable four-lane roadways in Virginia. In addition a number of severe rear end, fixed object and angle crashes occur along the corridor. Section 1.3.2 of the Draft SEIS provides detailed evidence of the unsafe roadway operating conditions along Route 460 that support a need for improvement, which can not necessarily be addressed through spot-improvements. The 16-miles of improved section of the FHWA/VDOT Preferred Alternative are predicted to reduce overall crash rates by 41 percent compared to the No Build Alternative along those 16 miles.*

*In the development of the FHWA/VDOT Preferred Alternative, the highest number of conflict points where the highest crash rates occur. In the 16-mile section of existing Route 460, where improvements are proposed, the total crash rate is 60 percent higher than the portion of the corridor where no improvements would occur.*

*Finally, safety is just one element of the Purpose and Need. As such, spot improvements would not be effective at addressing many of the other elements of the Purpose and Need because those elements can't be reduced to specific "spots" within the corridor.*

### **A.2.1 Military Connectivity – Fort Lee**

**Summary of Comments:** Specific to considerations of military connectivity as an element of the Purpose and Need, access to U.S. Army Fort Lee (Fort Lee), in Prince George County, was of concern for some commenters. Six comments included reference to Fort Lee and the potential for closure if roadway improvements are not made, of which some examples are listed below:

- Create a new better equipped highway for military or kiss Ft Lee goodbye.
- Ft Lee leaving and evacuation done swiftly equals impossible at 45 mph.
- Ft Lee needs swift, wide roads in case of emergency, let's build to be ready.

**Response:** *Infrastructure improvements to Route 460, an existing STRAHNET facility, would enhance connectivity and support deployment to/from the numerous Department of Defense (DoD) facilities in the Hampton Roads region. The FHWA/VDOT Preferred Alternative would contribute to the resiliency of the defense highway network due to the new roadway's proximity to military facilities and the mobility offered by its associated improvements. Although the FHWA/VDOT Preferred Alternative would not include any improvements beyond approximately two miles west of Zuni, which would limit to the benefit to Fort Lee, the military's overall readiness capabilities for seaport deployment and reliable responsiveness would be improved over existing conditions with improvements at the eastern end of the corridor.*

### **A.3 Mobility and Evacuation**

**Summary of Comments:** There were 26 comments that mentioned aspects of mobility and evacuation as an element of the Purpose and Need. In Chapter 1.0 of the Draft and Final SEIS, needs related to mobility and evacuation are specifically described as minimized travel delays, increased capacity for evacuation,

reduced evacuation clearance times, avoidance of flood prone areas, provision of adequate clear zones, and affordance of lane reversal options during times of evacuation.

A number of commenters questioned the Draft SEIS traffic analysis, which indicated that future traffic volumes will result in increased delays on Route 460 due to capacity limitations at traffic signals and the current design deficiencies. Other commenters discussed their support of the Draft SEIS traffic study findings. The following comments are among those related to the Draft SEIS traffic evaluation:

- I travel 460 and 58 twice a day going to and from work. Traffic along the present 460 where I live is not congested.
- If you've ever tried to get out of Washington, DC on Friday afternoon, you've seen real traffic. What I've seen on 460 is not anything comparable or it doesn't appear to be the number one traffic issue in the state of Virginia.
- My office is in Hampton, Virginia. Interstate 64 is jam packed with people going to the beaches in North Carolina, especially the weekends. There's not enough time in my lifetime to get the balance of Interstate 64 improved from Newport News/Hampton to Richmond. Sometimes it takes 2-1/2 hours to go, when in normal times you can do it an hour and 15 to 20 minutes, because of the crowd coming from the beaches in North Carolina. That's one of the main reasons we need this 460 improved.

**Response:** *As noted in the Draft and Final SEIS, congestion has not been identified as a need along the Route 460 corridor. However, it does serve as a primary travel way, as evidenced by the existing and forecasted traffic volumes in the corridor. Based on the anticipated growth in daily and peak period traffic volumes on existing Route 460, forecasted travel times over the entire length of existing Route 460 between Interstate 295 (I-295) and Route 58 are expected to increase by nearly 15 percent over No Build conditions. Meanwhile, the number of vehicle miles traveled (VMT) is anticipated to increase by approximately 44 percent and daily traffic volumes along some individual segments of Route 460 are anticipated to increase by as much as 94 percent. Increasing travel time and more frequent travel on existing Route 460 can translate into travel delays and cost. With the exception of Alternative 4, all of the alternatives evaluated in the Draft SEIS offered travel time savings that would improve or maintain the forecasted travel times on existing Route 460, over the No Build Alternative condition. Minor increases in travel times for Alternative 4, over the No Build Alternative, were anticipated due to the limited capacity improvements and the type of access management and control associated with this alternative.*

*The travel time savings and other congestion-related measures of effectiveness over the 16-mile length of improvements associated with the FHWA/VDOT Preferred Alternative and are documented in the Final SEIS.*

**Summary of Comments:** Some comments suggested ways to operationally improve evacuation along existing Route 460, while other comments refuted the need for improvements to Route 460 in order to provide adequate evacuation capacity during a weather-related event, suggesting that there are other evacuation routes or that Route 460 would not be used as such. Some examples of these comments include:

- No way this is an evacuation route.
- Turn existing 460 into 4 lanes for emergency.
- There are numerous overgrown areas along the easements with many leaning and rotted trees. This reduces the safe evacuation passage due to increased stresses by evacuation traffic and lessens the



usage window during high wind storms or flash flooding events.

- Emergency evacuation from VA Beach, well, they live on a beach... they make choices and they should evacuate when initially advised to do so and they can travel I-64 or HWYs 58, 13, 32 and others. Develop those roads to help grow those communities.
- For emergency evacuation capability, people have to be able to reach 460. I feel the other highways are in more need of improvements to reach the evacuation point.
- People evacuating from Hampton Roads will be gridlocked on I-64 and never reach 460 to leave the area.
- Trying to make Route 460 a major hurricane evacuation route is another deceptive issue.

For even a 50 year event, evacuation of Tidewater can be handled under our current conditions. Without elaborating too much, both Route 460 and Route 58 could be used by making all 4 lanes one way. For a national emergency declaration, all stop lights could be shut off, and local police officers could be posted at them to allow west bound traffic to proceed without stopping. On Route 58, there are only 5-6 stop lights near Suffolk from the end of the Route 58 bypass to the main highway, and no more all the way to I-95 at Emporia.

But let's look at one other point that the state just addressed. On July 18, 2014 Custis Brown, chief deputy state coordinator for the Virginia Department of Emergency Management, stated that Virginia is looking at 'not using' the reversible lane system on I -64 as the 'new idea' with other states is to focus more on targeted evacuations and shelters. Just in 2007 the state spent millions of dollars to install reversible gates on I-64 and I-664 in order to have 4 lanes of traffic headed west. The state thinks now that they can better utilize their attention to get people out of smaller areas than mass evacuation.

Then on September 4, 2014 Govern McAuliffe responded to the same issue. In the article he states:

- a. A mass evacuation of Hampton Roads may not be necessary if areas at risk are prioritized and communicated to the public early. This allows those in higher risk areas enough time to get to a safe location.
- b. The reversal of lanes on Interstate 64 is an evacuation tool of last resort and is reserved for the most catastrophic storms.

Finally, one of the presenter [sic] in the meeting stated that the evacuation routes were needed for people on the Outer Banks. Why? That is North Carolina's responsibility, not Virginia's. They finally made a statement in the newspaper last week that North Carolina is trying to address the issue. But why would we spend our state monies to solve their problem.

- I travel 460 and 58 twice a day going to and from work. Traffic along the present 460 where I live is not congested.

**Response:** As described in Section 1.3.5 of the Draft and Final SEIS, Route 460 is a primary route for motorists evacuating Southside Hampton Roads and is designated as such in the Virginia Hurricane Evacuation Guide<sup>2</sup>. Presently the facility is subject to closure during events because of flooding and blockage from roadside debris. In addition, the presence of driveways and intersections along existing Route 460 increase clearance times and limit the potential for lane reversal to be implemented, making it a less effective route for evacuation.

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<sup>2</sup> Most recent May 2014 Hurricane Evacuation Guide available at:  
<http://www.vaemergency.gov/sites/default/files/Final2014hurricaneguide.pdf>



*As part of the Final SEIS, several evacuation scenarios of incident frequency and duration were considered and modeled. Working with the Virginia Department of Emergency Management, VDOT evaluated the anticipated evacuation travel time savings that the FHWA/VDOT Preferred Alternative would offer over the 16 miles of improvements. The results of this modeling effort indicate that the FHWA/VDOT Preferred Alternative would provide system-wide transportation benefits that include a reduction of 66,000 vehicle hours of travel time (133,320 person hours) to all system users during a 25-hour evacuation period. Additional information is provided in Section 2.8.5 of the Final SEIS and detailed in the **Supplemental Traffic and Transportation Technical Report** (VDOT, 2016h).*

#### **A.4 Accommodate Freight Traffic**

**Summary of Comments:** The movement of freight through the Route 460 corridor was discussed in 24 of the comments received on the Draft SEIS. Commenters expressed concern regarding heavy truck traffic on the existing Route 460 facility and referenced potential economic opportunities offered by the accommodation of truck traffic in the Route 460 corridor. The following comments exemplify those received regarding the accommodation of freight traffic:

- Reduce tractor trailer (shipping) traffic.
- Trucks are awful on current Rte.
- If truck traffic is diverted from the towns along the 460 corridor that will be a real plus. Truck (18 wheelers) traffic has increased so much in the past 10 years and that needs to be deflected from Windsor.
- The warehouses that have been built in Suffolk, VA are creating more trucks to travel 460 to bring in merchandise for the consumer to buy... I see the future in this is to help move the products faster and safer for consumers.
- ...I would like to see the reduction of 18 wheelers on RT460. They are dangerous.
- For people that have been here and made this home, the biggest problem we've had is with the 18-wheelers going through the town. I think that resulted from a lot of the I-64 work in Newport News, Hampton area years ago. It seemed like they started taking this route as a convenience and it's continued.

**Response:** *As identified in Section 1.3.3 and 2.8.1.2 of the Draft SEIS, heavy truck traffic along the existing Route 460 corridor accounts for 16 percent of all daily traffic, which is the highest percentage of trucks in the total daily traffic compared to other freight routes in the region. By comparison, the national average truck composition is 10 percent of total vehicle miles traveled. It is anticipated that truck volumes will increase or change proportionally with improved freight accommodations in the Hampton Roads region and Route 460 will remain a primary freight route.*

*The FHWA/VDOT Preferred Alternative will provide an opportunity to facilitate a more efficient movement of truck traffic over the 16 miles of associated improvements, by separating truck traffic from local traffic and reducing the number of intersections along the new location portion of the alignment. In addition to improved freight movement, the FHWA/VDOT Preferred Alternative would offer additional safety benefits by shifting trucks to a facility with lower anticipated crash rates. Of the fatal crashes evaluated in the Draft SEIS, 45 percent of them involved tractor trailer trucks.*

*Improvements to Route 460 are anticipated to provide increased mobility for freight movement, which are among the goals identified in local plans for economic development as well as the Virginia Port Authority's Master Plan.*

#### **A.4.1 Freight to Rail**

**Summary of Comments:** In order to accommodate freight movement through the Route 460 corridor, 13 comments suggested that freight rail facilities could be improved rather than Route 460. Examples of these comments include:

- I have not seen any projects that include increasing the railroad for the big containers.
- More port traffic needs to go by train.
- Use Rail Road for freight.

**Response:** *Overall consideration of rail alternatives, including freight or otherwise, was not considered reasonable and were not included in the Draft SEIS because they would not address the majority of the elements of project Purpose and Need: roadway deficiencies, safety, evacuation capability, strategic military connectivity, or local economic development goals. Besides, the Port of Virginia moves its cargo using a variety of means that include rail, barge and trucks, and that variety provides the Port with needed flexibility. While the split among these three modes may vary at any given time based on a number of factors, the Virginia Port Authority anticipates that the split will remain relatively the same with Route 460 playing an important role in the movement of freight by trucks. Presently, Route 460, along with Route 58, is considered the main freight routes for the Virginia International Gateway (VIG) Terminal and the future Craney Island Terminal.*

## **B. Alternatives**

**Summary of Comments:** Seven comments recorded under this category cited general references to the alternatives considered in the Draft SEIS and their ability to meet elements of the project Purpose and Need. These general comments discussed a number of issues regarding the Draft SEIS alternatives, as noted in the examples provided below:

- Going through towns (especially Windsor) does not address identified transportation needs.
- I was hoping that we would have an alternative road built to take the volume of traffic off of 460 and that would help with the safety of the road, the current road. But it appears that they are looking at other alternatives.
- The DSEIS considers five build alternatives, in addition to a No Build Alternative, that can generally be described as follows: Alternative 1 is a new alignment to the south of the existing Route 460 corridor (the previous preferred alternative). Alternative 2 has two variations (2North/2South) and follows the existing Route 460 corridor with bypasses around the six communities along the roadway; 2N bypasses the community of Windsor to the north whereas 2S bypasses Windsor to the south. Alternative 3 is a new alignment that parallels to the north of the existing roadway. Alternative 4 is the reconstruction of the existing roadway on alignment. Alternative 5 has two variations (5N/5S) similar to Alternative 2 and adds two additional lanes in each direction for a total of eight lanes. The No Build Alternative includes planned upgrades and improvements to the existing roadway. Decision makers have the opportunity to select the No Build Alternative, one of the Build Alternatives, or may consider a modified alternative that could combine different elements of the Build Alternatives studied in the DSEIS based on the relative need for improvements along the corridor. At this time, the preferred alternative has not been identified.

**Response:** *Each Build Alternative included for evaluation in the Draft SEIS was retained for consideration because it generally satisfied the established Purpose and Need, although some alternatives offered greater advantages, such as travel time savings, over others. The comparison of each Build Alternative in addressing the Purpose and Need is documented in Section 2.8 of the Draft SEIS.*

*The FHWA/VDOT Preferred Alternative was selected based on its merits in sufficiently meeting the Purpose and Need by addressing roadway deficiencies, improving safety, improving strategic military connectivity, reducing travel delay, providing adequate emergency evacuation capacity, accommodating increasing freight shipment and supporting local economic development plans while taking into account comments on the Draft SEIS, the need to reduce environmental impacts, and cost-effective benefits. The FHWA/VDOT Preferred Alternative improves safety by yielding lower corridor crash rates and increasing evacuation capacity. Safety and mobility are enhanced in this portion of the corridor by separating local and regional traffic, which would allow for safer access to community facilities while accommodating truck traffic with a free-flow connection to Route 58. Citizen concerns related to flooding and projected sea-level rise were also considered. The FHWA/VDOT Preferred Alternative addresses consideration of climate change and coastal resiliency by providing redundant infrastructure, including appropriate elevation and limits of proposed bridge improvements over the Blackwater River as well as increased evacuation capacity through construction of a transportation system, that addresses future environmental risks such as flooding and projected sea-level rise. The FHWA/VDOT Preferred Alternative also provides reduced travel time and an effective new route for freight movement in this portion of the study corridor.*

## **B.1 Hybrid Build Alternatives**

**Summary of Comments:** In ten of the comments received, commenters called for consideration of a combination of two or more alternatives that were evaluated in the Draft SEIS. Many of these commenters discussed improvements along existing Route 460, with bypasses around selected built up areas. Four of the comments received that suggested hybrid alternatives proposed the inclusion of the No Build Alternative for portions of the Route 460 improvements. These comments regarding hybrid alternatives included recommendations from agencies and stakeholders. Examples of these comments are listed below:

- The Environmental Protection Agency (EPA) recommends a range of options from the Alternatives analyzed be considered when selecting a preferred alternative. Suggestions include Alternative 4 or modifications to the existing roadway alignment, including localized improvements or upgrades, and/or one or two bypasses. It has been demonstrated that certain areas, including the community of Zuni, require infrastructure improvement to address flooding issues. Inclusion of the bypass around the community of Zuni to alleviate a primary flooding and evacuation issue near the Blackwater River has been proposed. The bypass around Zuni is reported to impact 34 acres of wetlands. Alternatively, the roadway in this area could be raised out of the flood plain as proposed by alignment upgrades associated with Alternative 4 thereby impacting 2 acres of wetlands, but would impact more private properties. An appropriate rationale and determination of practicability should be provided with the selection of the preferred approach.
- The alignments that will have the least impact to the environmental resources are the No-Build, Alternative 4, or possibly hybrid alternatives with Alternative 4.
- Consideration of one or perhaps two bypasses around bottlenecks (i.e. Windsor, maybe Wakefield) but not around each small town along the route.
- Six bypasses may be too many but some would be appropriate.
- New Road Alignment around Windsor only.

**Response:** As described in **Section 2.3.6** of the Draft SEIS, each alternative evaluated over the extent of the Route 460 corridor included segments or links. Each of these segments could be combined in various combinations to allow for the development of a hybrid alternative that could potentially be less environmentally damaging and/or less costly. In **Section 2.3.6** of the Draft SEIS, the public was alerted to the possibility that hybrid alternatives could be considered and one advanced as the preferred alternative.

Following the publication of the Draft SEIS, VDOT determined that none of the five Build Alternatives evaluated over the extent of the study corridor would be viable options based on public comments that were received, input from the resource and regulatory agencies regarding the estimated environmental impacts, including potential Council of Environmental Quality (CEQ) referral, and the cost opinions that had been developed. However, in addition to the Draft SEIS supporting the ability to select one of the five alternatives studied or the No Build Alternative, it also supported combining sections of those alternatives, including the No Build Alternative, to form an alternative not individually evaluated as a standalone alternative in the Draft SEIS.

As a result, VDOT carefully reconsidered each of the Draft SEIS alternatives – in whole, in parts, and in hybrid combination with one another – in order to identify a single alternative that would sufficiently address the identified project Purpose and Need, while minimizing environmental impacts and providing a cost effective project. As described in **Section 2.5** of the Final SEIS, the selected FHWA/VDOT Preferred Alternative includes 36 miles of the No Build Alternative and 16 miles of improvements, which combine segments of Alternatives 1, 2, 3, and 4 evaluated in the Draft SEIS. Detailed documentation of the selection and development of the FHWA/VDOT Preferred Alternative is included in **Section 2.4** the Final SEIS.

## **B.2 New Alternative or Alternative Modification Proposed**

**Summary of Comments:** Commenters proposed several alternatives that were not evaluated in the Draft SEIS that ranged from suggested spot improvements to new alternatives outside of the Route 460 study area. Of these 35 commenters, many indicated improvements should occur elsewhere. The comments below exemplify the range of alternatives suggestions that were received:

- We still need more evacuation routes from Suffolk. Possibly widen Route 58 to 6 or 8 lanes.
- Best Route would be to improve Rt 10 to 4 lanes. Come from Bowers Hill to Chuckatue [sic] and up Route 10 to 295.
- Provide passenger rail services like VRE in Northern VA.
- 95 to 35 to 58.
- Please address Bowers Hill and tunnel bottlenecks prior to this.
- What about County Drive (460) in Petersburg? It is in shambles and will only have a major increase in truck traffic. Having access to 295 will not encourage trucks going to 85 or Southern Richmond.
- It seems to us that the money could be used better elsewhere. That is not to say that a new black top would be just fine.
- If trucks on 460 going to and from the ports are the issue, why on earth doesn't the road go directly from Petersburg to Bowers Hill interchange?
- I would like to know why Route 10 hasn't been considered an alternate route. Improve 460 with, say, Jersey walls and widen the shoulders, and then another road from Bowers Hill across the Chuckatuck and repair the bridge there that's been out for 10 or 15 years, that these people can't get around and have to bypass. Repair that and come across, and [sic] Chuckatuck, hit route 10, come right on up 10 to 295. Then your truck traffic that wants to go north and east can go 295, and the

ones that want to go west can come up 460 and go 85 or wherever that way, or follow 460 right on out. I think that is a better alternative and it gives you two four-lane evacuation routes from the peninsula.

**Response:** *The Council on Environmental Quality's (CEQ) implementing regulations for NEPA, codified at 40 CFR §1502.14, require that a reasonable range of alternatives be explored and evaluated. As documented in the **Alternatives Technical Report** (VDOT, 2014e) and the **Supplemental Alternatives Technical Report** (VDOT, 2016e), a number of alternatives and permutations have been evaluated since the initiation of the Route 460 Location Study with the 2005 Draft EIS. It was decided that Alternatives that had been carried forward for further evaluation previously would be reconsidered in the SEIS. Throughout the development of environmental evaluations for the Route 460 improvements, FHWA and the USACE have agreed that a reasonable range of alternatives has been considered. Other alternatives, such as those suggested during the Draft SEIS comment period, were not considered further because they did not sufficiently meet the Purpose and Need or were outside the scope or study area of this NEPA evaluation. The FHWA/VDOT Preferred Alternative is the culmination of the alternatives evaluation and analysis and was selected for its merits in sufficiently meeting the Purpose and Need, while minimizing environmental impacts and providing the most cost effective benefits overall.*

*The study area for alternatives evaluated in the Draft SEIS was carried forward from the 2005 Draft EIS and established the area within which potential improvements were considered. Similarly, the 2005 Draft EIS established logical termini within which improvements evaluated would address the identified needs of the project while not forcing additional transportation improvements elsewhere. As a result, transportation improvements outside of the study area and beyond the identified limits of the logical termini were not considered for evaluation. Although within the study area, improvements along Route 10 in the northernmost portion of the study area would not effectively address the components of the study's Purpose and Need because of its distance from the Route 460 corridor. Route 10 is located approximately 8 miles from the Route 460 corridor at the western terminus, approximately 15 miles from the Route 460 corridor at Wakefield, and as much as 17 miles from the Route 460 corridor at its furthest point. In addition, Route 10 is a two-lane facility much of its length and a much longer corridor to improve. To travel from Suffolk at the eastern end of the Route 460 corridor to New Bohemia at the western end of the corridor using Route 10 and other secondary roads would cover a distance close to 80 miles. To travel from Suffolk to Hopewell and other points west using Route 10 would be close to 68 miles.*

*In addition to providing a lengthy and circuitous route between the western and eastern termini, any improvements along Route 10 would not address roadway deficiencies or safety concerns on existing Route 460. Furthermore, Route 10 is not designated as part of the Strategic Highway Corridor Network (STRAHNET) and improvements to this corridor would not address the need to update the design standards for the Route 460 facility, which serves a critical role in preserving the nation's security and military preparedness. Finally, Route 10 is not a designated as a freight route.*

*Specifically with regard to suggested passenger rail, such improvements have been considered in the Route 460 corridor. A 2009 Tier 1 EIS published by the Federal Railroad Administration (FRA) and the Virginia Department of Rail and Public Transportation (DRPT) evaluated the Richmond to Hampton Roads Passenger Rail Corridor but eliminated potential railroad routes located within the Route 460 study area from consideration. The FRA / DRPT Route 460 alternative was found to be incompatible with higher-speed passenger rail options and alignment design; therefore, none of the potential railroad routes within the Route 460 study area were carried forward (DRPT, 2009).*



*While the Route 460 project has focused on the needs within the identified study area, the Virginia Department of Transportation has indicated that it is committed to providing transportation improvements throughout the region that address a variety of needs. Those needs are identified and prioritized by the State and localities as part of the transportation planning and programming processes in coordination with the public. Additional projects and studies that are underway in the Hampton Roads area can be found here: <http://www.virginiadot.org/projects/hampton%20roads/default.asp>.*

### **B.3 Traffic Analysis**

**Summary of Comments:** Twenty-four comments were received on the Draft SEIS that discussed various elements of the traffic analyses. The primary concern regarding the traffic analyses was congestion along Route 460 and the travel time savings offered by each alternative, as tabulated in **Table 2.8–1** of the Draft SEIS. Other comments mentioned crash data and safety statistics, while others referenced the percentage of trucks along the existing Route 460 corridor and the new Build Alternative facilities. Several comments indicated that congestion was not an issue on Route 460.

- The current 460 can handle the current amount of traffic.
- I live on Route 460 outside of Windsor and travel it daily during my commute to work in Portsmouth. The traffic is rarely heavy and accidents are few and far between. I experience more delays on 58 (twice this week alone) than I ever do on 460.
- Route 460 is NOT the problem. It never has been. Interstates 64, 264 and 664 ARE CONGESTED. Traffic on route 460 is heavier than in past years; YES! But I have NEVER had to sit in a traffic jam. NEVER have I seen flashing signs warning that there was a 2 mile, a 4 mile or more backup on 460. I 64 where it joins route 17, 64, 264, 664 & hwy.13 converge at Bowers Hill creating major congestion during rush hours and would certainly do so during an evacuation situation.
- Every time I travel it I feel traffic is just fine and [Route 460 is] an easy drive.

**Response:** *Traffic congestion was not an issue identified among the elements of Purpose and Need in the Draft SEIS, and the project was not developed with it in mind. Instead, travel delays along the corridor were identified due to the number of signalized intersections and access points along the existing facility. In order to estimate the impact future traffic volumes would have on travel conditions along the Route 460 corridor, congested speed values were calculated to determine travel times for segments of the corridor. The traffic analyses conducted for the alternatives evaluated in the Draft SEIS indicated that, with the exception of Alternative 4, each Build Alternative offered some degree of travel time savings over the No Build Alternative. From I-295 to Route 58 along existing Route 460 travel time is anticipated to increase by approximately 15 percent, to an estimated 70 minutes, between existing 2013 conditions to 2040. As a result, there is a need to improve traffic conditions along the corridor. As previously described in **Section A.2 and A.4** of this report, safety and accommodating freight traffic were additional needs that supported the purpose for Route 460 improvements.*

*Details on the traffic analyses, crash data and safety statistics, as well as the anticipated truck diversion over the 16 miles of improvements associated with the FHWA/VDOT Preferred Alternative are described in the **Supplemental Traffic and Transportation Technical Report** (VDOT, 2016h).*

### **B.4 Tolling**

**Summary of Comments:** Tolling options for the Build Alternatives evaluated in the Draft SEIS received varying degrees of support and opposition in the comments received. Among the 24 comments that discussed this issue, many commenters strongly opposed any form of tolling while others suggested tolling

as a means of funding the alternative selected. A number of commenters also suggested that tolls be limited to the bypasses, so that individuals traveling the entire alignment would be subjected to higher fees rather than those only traveling a short distance on the new facility.

- Toll money is needed to help finance the road.
- We need either a high-speed, limited access road that can be tolled or bypasses around the larger towns that can be tolled to help pay for bonds as planned originally.
- Toll-wise, in the State of Virginia. It's killing us. I make \$40,000 a year and it's costing me almost \$3,000 to \$5,000 a year for tolls going from Norfolk throughout Virginia. It's ridiculous.

**Response:** *Section 2.5 of the Draft SEIS addressed the viability for tolling each Build Alternative that was considered, as a means of potentially funding any improvements selected to be advanced in the Final SEIS. As a result of the improvements being reduced to 16 miles on the eastern end of the corridor, tolling was determined not to be a viable option and is no longer being considered as a funding mechanism to finance the project.*

## B.5 Engineering

**Summary of Comments:** Sixteen comments included references to design and engineering considerations for one or all of the Build Alternatives evaluated in the Draft SEIS. These references included a number of suggestions and questions ranging from the design speeds of mainline segments and termini to specific turning movements and sidewalk locations. The following summarizes some of the comments received on engineering aspects of the Route 460 improvements:

- We need an interstate grade road
- We need a high speed exit ramp onto 295 for safety. Make the exits that will serve the future. Higher level of traffic from development.
- 460 needs more service lane to move the traffic over clear off 460 when turning off 460
- After improving 460 look at where frontage roads and limited access intersection would benefit in the future. Maybe 4 and parts of 2 limit left hand turns.
- We do need wider lanes which also includes shoulders for safety purposes.
- What would happen to Route 40?
- I don't know if the engineers have done a survey on the ground work or the underlayment of the ground.

**Response:** *For the purposes of comparing alternatives in the Draft SEIS, planning level engineering was done using professional engineering judgement. As the alternatives were more closely scrutinized during the development of the FHWA/VDOT Preferred Alternative recommendation and selection and the FHWA/VDOT Preferred Alternative was further developed for the Section 404 permit application, additional engineering refinement occurred. The engineering assumptions for the Draft SEIS alternatives are documented in the **Alternatives Technical Report** (VDOT, 2014e). The **Supplemental Alternatives Technical Report** (VDOT, 2016e) details the engineering and design considerations that went into the FHWA/VDOT Preferred Alternative and its development. As the project advances, the design will continue to be evaluated.*

## B.6 Support for No Build Alternative

**Summary of Comments:** Commenters in support of the No Build Alternative noted that the other alternatives had excessive cost or environmental/property impacts, that spot improvements were more

appropriate, and that there were other projects that should be prioritized instead. Some examples of these comments include:

- I favor no build option combined with smaller improvements.
- Keep it the way it is.
- Leave it alone.
- Knowing that the other four Alternatives are more expensive, would endanger more wetlands, would necessitate tolls and be just as imposing on property owners, farmers and the like, I support the No Build option.

**Response:** *The FHWA/VDOT Preferred Alternative includes the No Build Alternative for approximately 36 miles of the existing corridor. The decision to implement the No Build Alternative along this portion of the corridor was based on the high potential for environmental and property impacts. The eastern 16 miles of the corridor does not include the No Build. This decision to not implement improvements west of Zuni was made following the Draft SEIS in an effort to minimize environmental and property impacts while providing cost effective benefits overall. Additional detail on the incorporation of the No Build Alternative as part of the FHWA/VDOT Preferred Alternative is described in **Section 2.4** of the Final SEIS.*

### C. Environmental and Social Concerns

**Summary of Comments:** Commenters who expressed general concerns about environmental impacts resulting from the alternatives evaluated or those who commented on a number of environmental concerns were categorized under this theme. Environmental and social concerns were among the top issues referenced in the comments received, as 29 comments included general references to this topic. Examples of these general comments are listed below:

- [Other issues and concerns] - Displacement and environmental impact.
- It is a huge concern how many people will be affected by building a new road. That really needs to be taken into account. Homes will be lost. Wildlife will be affected.
- VDOT should follow alignments with the least amount of environmental impact.
- Where VDOT states it starts and end [sic] - it does not meet any needs except take wetlands, farms, homes, businesses, small towns -will no longer be able to survive.

**Response:** *In accordance with NEPA and the FHWA's implementing regulations for NEPA, respectively codified at 42 USC §4331-4347, as amended, and 23 CFR §771, the Draft and Final SEIS for the Route 460 Southeast Virginia Project were prepared to analyze the potential social, economic, and environmental effects associated with the alternatives evaluated. The SEIS includes evaluation of a range of environmental resources for the purposes of informing sound decision making moving forward. The Final SEIS documents the environmental considerations and potential impacts of the FHWA/VDOT Preferred Alternative. Additional detail on the individual resources studied can be found in **Chapter 3.0** of the SEIS. Responses to comments received regarding specific resources are included in the sections that follow.*

*Before the project can proceed, it must receive a Record of Decision from the Federal Highway Administration and a permit from the U.S. Army Corps of Engineers. The project will also be scored under House Bill Two (HB2). Major projects that would improve statewide corridors, such as Route 460, are scored based on an objective data-driven process, which includes considerations of project benefits as well as potential environmental impacts.*



### C.1 Wetlands and Streams

**Summary of Comments:** Comments regarding wetland and stream impacts along the corridor were polarized between commenters who suggested that wetland resources could be replaced, enhanced, or were not worth preserving and others, particularly several agency and special interest groups, who suggested the anticipated impacts to wetlands and streams were too severe. Commenters such as the Chesapeake Bay Foundation, the Nature Conservancy, the Southern Environmental Law Center, and the EPA noted that the anticipated loss of wetland acres for the length of the Draft SEIS Build Alternatives were among the highest estimated for any roadway project in Virginia historically, some of which were considered to be difficult to mitigate. The EPA's comments also called for further characterization of the impacted wetlands, based on their ecological context and functions, in the Final SEIS and Section 404 permit application.

Some examples of the comments regarding wetland and stream impacts are provided below:

- Wetlands can be replaced and even environmentally better.
- Wetlands can (and do) be relocated and even improve them. Have you been to FLA? Around highways they do beautiful site that wildlife love- we can do the same here.
- I question the wetland numbers it seems the feds have a new number each time. Their rules must change.
- Wetlands can be replaced and moved and enhanced. They are not lost forever but only moved. All 50+ miles are low-wetlands. Make them better and scenic.
- Wetlands disturbed should be of minor concern.
- [Other issues or concerns] wetlands and river disturbance.
- Do not destroy wetlands.
- Please refer to recent study showing the importance of wetlands in forested areas to preventing Nitrogen runoff. <http://www.vtnews.vt.edu/articles/2014/11/110514-cnre-groundwaternitrogen.html>.
- The wetland destruction resulting from proposed improvements to U.S. Route 460 will significantly contribute to this history of wetland loss in the Commonwealth. State and federal statutes designed to achieve "no net loss" recognize that wetland resources provide important ecosystem and economic benefits, including water quality improvements, flood control, and fish and wildlife habitats.
- The most visible and significant environmental issues with the proposed Alternatives are the projected impacts to streams and wetlands. The magnitude of these potential impacts (up to 613 acres of wetlands and up to 13 linear miles of streams) deserves close scrutiny. The [Nature] Conservancy has concerns that impacts at this scale, if permitted, could set an unwelcome precedent for permitting decisions involving future road or development projects in Virginia. The Conservancy has selected the Nottoway and Blackwater Rivers as priority watersheds for aquatic conservation based on their exemplary populations of fish, mussels, and other aquatic resources. The scale of the proposed project poses water quality threats to these aquatic resources. It is imperative that the preferred Alternative meet the highest standards for avoidance and minimization of wetland and stream impacts and ensure the highest quality compensatory mitigation.
- Most of the alternatives propose extensive impacts to aquatic resources, of a scope and scale that is nearly unprecedented in the mid-Atlantic region for a comparable transportation project proposal. The impacts associated with most of the alternatives implicate direct loss of the

resources themselves (habitat, hydrologic functions, etc.), as well as adverse impacts to the quality of downstream waters, portions of which are already identified as impaired by the state, and for the larger watersheds. The potential direct loss of aquatic resources is not only a geographic loss but a functional loss. The potential loss of functions and values associated with the removal of up to 664 (or 613 with bridging) acres of wetlands and 79,120 linear feet of stream channel (70,869 with bridging) will permanently and adversely alter the local hydrological, geomorphological and biogeochemical processes, in addition to losing and fragmenting valuable wildlife habitat.

Through the placement of fill and subsequent highway construction, the flood attenuation, pollutant filtering, sediment trapping, and habitat functions of the directly impacted resources will be lost or greatly diminished. The functions and values related to the biogeochemical processes that would be impacted negatively include cycling of nutrients, removal of elements and compounds, retention of particulates and exportation of organic carbon. These functions contribute to overall wetland and water quality and support aquatic life in the receiving streams. The lost resources would be replaced by impervious surfaces, which are known to cause increased pollutant loads, and increased storm flows, potentially degrading additional wetlands and streams.

**Response:** *The primary reason for preparing the SEIS was because of anticipated impacts to aquatic resources, which are prevalent throughout the study area, as well as other important environmental considerations. As a result, impacts to wetlands and streams were carefully considered during the development of alternatives in the Draft SEIS and the recommendation and selection of a FHWA/VDOT Preferred Alternative. Working collaboratively with the USACE and FHWA, VDOT adopted the alternatives included in the previous 2005 Draft EIS for further study in the 2014 Draft SEIS. However, before evaluating the impact from these alternatives in detail, VDOT and the joint lead federal agencies attempted to identify areas where the alignments could be modified to avoid or minimize potential impacts to wetlands and other important environmental resources. Additional consideration, beyond that of previous studies, was given to the identification of wetlands, as a detailed photointerpretive effort was employed for the Build Alternatives.*

*The FHWA/VDOT Preferred Alternative was selected, in part, because the anticipated wetland impacts for improvements spanning the length of the study corridor were determined to be too great. As the FHWA/VDOT Preferred Alternative design for permitting was developed, VDOT continued to work closely with the USACE and FHWA, as well as EPA, the Virginia Department of Environmental Quality (DEQ), and the Virginia Marine Resources Commission (VMRC), to identify opportunities to further avoid and minimize impacts to environmental resources, particularly wetlands and streams. Wetlands and streams within the FHWA/VDOT Preferred Alternative corridor were field delineated and jurisdictionally confirmed by the USACE. Anticipated impacts to wetlands and streams were included in VDOT's Joint Permit Application (JPA), prepared under Section 404 of the Clean Water Act of 1972 (CWA) and the Rivers and Harbors Act of 1899, and are described in **Section 3.4** of the Final SEIS as well as the supporting **Supplemental Natural Resources Technical Report** (VDOT, 2016f).*

*As part of the JPA, a Compensatory Mitigation Plan has been developed in order to compensate for unavoidable impacts to wetlands and streams.*

*In order to address comments received from the EPA regarding the ecological functions of wetlands impacted as a result of the FHWA/VDOT Preferred Alternative, VDOT, in collaboration with EPA, USACE,*

and DEQ, engaged in a functional assessment of each wetland impacted along the length of the 16 miles of improvements. The results of these data gathering and modeling efforts were used, in part, to develop the Compensatory Mitigation Plan and are detailed in the **Supplemental Natural Resource Technical Report** (VDOT, 2016f) and **Chapter 3.0** of the Final SEIS.

## C.2 Floodplains and Flooding

**Summary of Comments:** Flooding along existing Route 460 was a key concern among 17 of the comments received. A number of commenters were particularly concerned with how the improvements would address flooding at the Blackwater River; some suggested that the conditions would become worse resulting in flooding of churches and homes in Zuni. Examples of comments regarding flooding issues include the following:

- This project does not address the current problems of the existing 460. Those being many low easily flooded sections. Drain pipes collapsing due to age and wash outs. Blackwater Bridge way pass [sic] its service life showing rusting and open gaps in road surface. You have overgrown easements with many leaning and rotted trees.
- Old 460 too low- floods in heavy rains.
- If upgrades are made to the present 460 rising [sic] the highway higher than the surrounding land, flooding will be made much worse. The ditches along the present 460 are not properly maintained by the State having small trees and bushes growing in them blocking the flow of water and causing the land to retain moisture. Would anything be any different with a new and improved 460?

**Response:** In **Section 2.4.1** of the Draft SEIS, the analysis of flood prone areas along Route 460 was discussed, which determined that the close proximity of the Norfolk Southern railroad to Route 460 creates an embankment that results in stormwater backup towards the roadway. Historic flooding at the Blackwater River Bridge in Zuni was determined to be among the top priorities for the improvements included in the FHWA/VDOT Preferred Alternative. In order to satisfy the hydraulic requirements of state and federal agencies, a new bridge will be constructed outside the FEMA calculated 100 year flood elevation that will not increase flood levels. Additional height was added to the design of the new Blackwater River Bridge to accommodate for historic flooding events, which have risen to an elevation approximately five feet higher than the 100 year flood elevation four times in the past 15 years. Because the FHWA/VDOT Preferred Alternative will be on new location and designed to current design standards, it offers an alternative to flood prone areas along existing Route 460 east of Zuni.

## C.3 Stormwater Runoff

**Summary of Comments:** Two commenters expressed general concern about what continued and increased stormwater runoff could do to the surrounding properties and resources. Among these comments, the EPA recommended that the Final SEIS include specific details on where stormwater management best management practices are to be located, to ensure they are adequately sized and are not placed in wetlands. The two comments regarding stormwater runoff and management are listed in their entirety below:

- Water run-off is of major concern.
- Increased impervious surfaces and subsequently increased pollutant loads and storm flows from the alternatives will potentially degrade the wetland and streams functions and values locally and for the watersheds which these aquatic resources drain. In addition to the direct impacts to wetlands and streams, the indirect effects to the remaining aquatic resources in the design corridor, and the associated downstream impacts, the cumulative loss of hundreds of acres of wetlands coupled with

the introduction of a pollutant source, will permanently and adversely impact the surrounding wetlands and downstream water quality.

Wetlands and the associated aquatic systems provide habitat, supporting plant and animal communities and providing wildlife corridors that add to overall biodiversity. The direct impacts of wetland loss and habitat fragmentation and the cumulative loss of hundreds of acres of wetlands, coupled with the introduction of a pollutant source, will permanently and adversely impact the ability of these aquatic resources to provide habitat.

...The DSEIS makes references to stormwater management (SWM) throughout the document but does not go into detail with regard to the individual alternatives. EPA suggests that FSEIS include for the preferred alternative a preliminary design for SWM, including potential design and locations for proposed facilities. A green infrastructure approach is recommended (please consider information included in the EPA website located at: <http://water.epa.gov/infrastructure/greeninfrastructure/index.cfm>). EPA discourages any use of waters of the U.S. for stormwater treatment. Numerous studies have shown that siting these facilities in wetlands leads to the degradation of aquatic ecosystems by contributing to thermal pollution and downstream warming. Retaining stormwater and changing the natural flow rate will alter the natural level of the water table and change the surrounding wetlands vegetation. Stormwater management structures in wetlands will not prevent pollutants such as fertilizers, pesticides, spills, sediment, and urban contaminants such as bacteria, heavy metals and petroleum from automotive activities, from entering the surface waters since the structures are already in the surface water. Moreover, an in-stream stormwater management and water quality treatment facility will alter hydrology, and potentially increase erosion and sedimentation rates.

Where appropriate, consideration should be given to low impact development (LID). LID incorporates environmentally and economically beneficial landscape practices designed early in project development to address stormwater management.

**Response:** *VDOT is committed to implementing applicable stormwater management and pollution control measures as part of the project. VDOT's practice is generally to maintain both water quality and quantity post-development equal to or better than pre-development, as described in the current guidance, Minimum Requirements for the Engineering, Plan Preparation and Implementation of Post Development Stormwater Management Plans (Instructional and Informational Memorandum Number: IIM-LD-195.8, VDOT – Location and Design Division). One of the mitigation measures used to achieve this goal is the implementation of a monitoring program to measure pollutant concentrations at several outfall locations before, during, and after construction. If pollutant levels exceed established thresholds, actions would be taken to mitigate impacts and the affected public would be notified as required. Outside of the built up areas, there are currently no controls on stormwater runoff in the corridor and runoff enters receiving bodies of water untreated. One of the benefits of the project is that it would address this runoff.*

*Additional details on the post-construction stormwater management plan would be developed during the design stage of the project. Nevertheless, the plan would be developed in accordance with the most up-to-date federal and state regulations. If newer technologies or state of the art practices that are less intrusive on the environment but just as effective can be implemented in the project, then they would be considered further.*

*As the part of the permitting process, VDOT has identified a preliminary estimate of the number, type, and location of stormwater facilities proposed for the corridor. Stormwater management facilities have been*

*preliminarily designed to retain and discharge stormwater runoff to pre-development levels at non erosive velocities and the outfall locations will include rip rap as necessary to prevent scouring. The stormwater management facilities will also provide water quality control by treating impervious surfaces.*

#### **C.4 Water Quality**

**Summary of Comments:** Two comments received from the Chesapeake Bay Foundation and the Southern Environmental Law Center noted that impacts to water quality would not be confined to the immediate road corridor but would be felt downstream throughout the watershed. These specific comments identified potential impacts to drinking water sources and the scenic Blackwater River. These commenters also expressed concern as to how the proposed alternatives may impact Virginia's ability to meet clean water regulations, including the Chesapeake Bay Action Plan and VDOT's General Virginia Pollutant Discharge Elimination System (VPDES) Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems (MS4).

**Response:** *As part of the permitting process, anticipated water quality impacts and Total Maximum Daily Load (TMDL) requirements have been thoroughly addressed, as part of the requirements for obtaining a Section 401 Water Quality Certification permit from DEQ, which is required prior a Section 404 permit decision. Through its MS4 program, VDOT implements a comprehensive stormwater management program to control the discharge of pollutants from stormwater to the maximum extent practicable in a manner that protects water quality in nearby streams, rivers, wetlands and bays. Under the MS4 general permit, VDOT has developed, implements and enforces a program that controls construction site stormwater runoff and manages post-construction stormwater runoff for new development and redevelopment.*

*Although improvements associated with the FHWA/VDOT Preferred Alternative would occur within the watershed of drinking water sources and the Chesapeake Bay, VDOT's implementation of its MS4 program will minimize any impacts to water resources (including drinking water). In addition, requirements of the anticipated permits from appropriate regulatory agencies would further address and reduce impacts to water quality. The FHWA/VDOT Preferred Alternative also represents a sizable decrease in the impervious footprint assumed for the alternatives included in the Draft SEIS, further reducing anticipated impacts to water quality.*

*The Virginia General Assembly enacted the Chesapeake Bay Preservation Act (Bay Act) in 1988 as a partnership between the state and 84 of Virginia's eastern-most localities that are located in the Chesapeake Bay watershed. Development within the localities located within "Tidewater Virginia" (as defined in the Code of Virginia) is subject to the requirements of the Chesapeake Bay Preservation Act.*

*The proposed FHWA/VDOT Preferred Alternative falls within three localities: Southampton County, Isle of Wight Counties, and the City of Suffolk. Southampton County is not located within "Tidewater Virginia." The portion of the Project that lies within Isle of Wight County is located outside of the Chesapeake Bay watershed and is not subject to the Chesapeake Bay Preservation Act. The only portion of the Project that is located within the Chesapeake Bay watershed is the portion within the City of Suffolk located approximately east of the proposed Route 258 crossing north of the Town of Windsor.*

*The Chesapeake Bay Preservation Areas consist of Resource Management Areas (RMAs) and Resource Protection Areas (RPAs). Title 9 of the Virginia Administrative Code (9 VAC 10-20-150B) allows public*



roads to be located within RPAs subject to certain conditions. Construction, installation, operation, and maintenance of public roads and their appurtenant structures are exempt if:

- The roadway is constructed in accordance with an erosion and sediment control plan consistent with regulations promulgated pursuant to the Erosion and Sediment Control Law (§ 10.1-560 et seq. of the Code of Virginia).
- The roadway is constructed in compliance with the Stormwater Management Act (§ 10.1-603.1 et seq. of the Code of Virginia) and a stormwater management plan approved by the DEQ.
- The road is designed and constructed to prevent or otherwise minimize encroachment in the RPA and minimize water quality impacts.

The Route 460 Project will be compliant with the Bay Act because it will be designed and constructed in accordance with VDOT's annual erosion and sediment control and stormwater management standards and specifications, which are approved by the DEQ.

Certain components of the FHWA/VDOT Preferred Alternative are close enough to, or over, public surface water supplies as to require special mitigation measures, both during and following construction. To protect public drinking water supplies, bridge runoff will be collected and treated at stormwater management facilities rather than running directly off the bridges into underlying waters. Stormwater management basins located near public water supplies will be designed with adequate detention time to allow spilled contaminants to be pumped out before they can enter the water supply. Although a spill consisting of the entire contents of a tanker truck would be unlikely, in the event of a spill, local spill response personnel would contain the spill and prevent its spread through the use of absorbent booms and pads.

A VSMP Permit from DCR will be required for construction activities affecting greater than one acre, as well as an approved erosion and sediment control plan. During and immediately following construction, multiple measures (such as erosion and sediment controls, a phased plan to limit the amount of exposed soil, and oversight by a full-time erosion and sediment control inspector) will be implemented in the vicinity of surface waters critical to public water supplies or special aquatic habitat. With implementation of appropriate mitigation measures and BMPs, the long-term operation and maintenance of the FHWA/VDOT Preferred Alternative is not expected to result in adverse impacts to water supplies

## C.5 Wildlife and Forested Habitat

**Summary of Comments:** Eleven comments, including a number of comments received from agencies and special interest groups, were concerned about direct impact to species through road and bridge widening, as well as indirect effects that could occur through the fragmentation of wildlife habitat. These commenters also expressed concern about the proximity some of the alternatives would have to wildlife conservation areas and the prescribed burning that occurs at these sites. Commenters cited the need for appropriate coordination, mitigation, and meeting regulatory requirements. Examples of these comments included the following:

- The [new location] alternatives have extensive impacts to environmental resources and we do not support further consideration of these alternatives as the least environmentally damaging. We also support the alternative alignments that do not impact or affect the management of important natural area preserves in the area such as Piney Grove Preserve, Antioch Pines Natural Area Preserve and the Zuni Pine Barrens Natural Area.

- [Project] provided [sic] minimal disruption to the ecosystem and bald eagle habitat.
- In addition to the large, unprecedented magnitude of impacts to wetland, alternatives for the U.S. Route 460 improvements also represent a threat to other habitats that are noteworthy and unique.
- Southeast Virginia is dominated by extensive pine forests which provide ecologically vital wildlife habitat in addition to economically valuable forest products for private landowners. Prescribed burning is an essential tool for maintaining the health of these forests for landowners such as the Conservancy, which is seeking to achieve wildlife habitat goals, and for other private landowners who are seeking to achieve forest management financial goals. Placement of a high-speed highway in close proximity to areas of active pine forest management raises concerns about the ability to maintain and expand the extent and frequency of prescribed fire efforts, as well as associated safety concerns with smoke incidents on the highway itself. While there may be no way to eliminate all risk, the potential for both wildlife/habitat conflicts and smoke-related safety issues should be considered as Alternatives in the SEIS are evaluated.

**Response:** As noted in **Section 3.4**, the acreage of impacted wildlife habitat that could occur under the FHWA/VDOT Preferred Alternative is much less than the Build Alternatives considered in the Draft SEIS. Direct and indirect impacts could still occur, but would be limited to the areas of the FHWA/VDOT Preferred Alternative that are on new location alignment, between west of Windsor to the Route 58 interchange. Under the FHWA/VDOT Preferred Alternative, there would be no improvements made on new location near the conservation areas, avoiding impacts to these sites and the prescribed burning efforts. Improvements along existing Route 460 would bisect the Zuni Conservation Site. Potential impacts resulting from the bisection of a transportation corridor include direct loss, potential degradation of water quality, and fragmentation of habitat. However, any such impacts associated with the FHWA/VDOT Preferred Alternative are expected to be minimal as the Zuni Conservation Site is currently crossed with the existing Route 460 roadway. Coordination has occurred with the U.S. Fish and Wildlife Service (USFWS), Virginia Department of Game and Inland Fisheries (DGIF), Virginia Department of Conservation and Recreation (DCR), and Virginia Department of Agriculture and Consumer Services (VDACS) as part of this SEIS and the project team has incorporated avoidance and mitigation measures in order to meet regulatory requirements.

## C.6 Threatened and Endangered Species

**Summary of Comments:** Seven comments noted interest and concern for specific threatened and endangered species known to inhabit the study area. Examples of comments received from agencies and the public included:

- Have eagles on three of the alternatives proposed.
- A better plan has to be in place to address the Impacts to Northern Long Eared Bat habitat. How can the FHWA make an informed decision without knowing all the facts? The bat is a proposed species for listing now under the Endangered Species Act (ESA) and is afforded protection as listed until a decision is made (Est. April 2015). The project should be required to conduct maternity roost specific survey work as required under the USFWS guidance on proposed species.
- The applicant acknowledges that at least one of the currently proposed projects may impact several state endangered or threatened species, most notably the Mabey's salamander, Eastern tiger salamander, barking treefrog, and Rafinesque's big-eared bat and that mitigation will be required. In addition, depending on the chosen alternative, impacts upon state endangered black banded sunfish, anadromous fishes, and American eels may result. These species are state listed or

otherwise designated imperiled because their habitat requirements are quite specific and suitable habitats are rare on the landscape. It is essential that mitigation for adverse impacts upon these species address the specific habitat needs of these species and provide ecologically meaningful compensation.

**Response:** *The improvements associated with the FHWA/VDOT Preferred Alternative greatly reduce potential direct and indirect impacts to threatened and endangered species over those of the alternatives evaluated in the Draft SEIS. VDOT has completed due diligence studies and coordinated with the USFWS, DGIF, and DCR's Natural Heritage Program throughout the development of the Draft SEIS and Final SEIS, as well as the applicable environmental permit applications. Field habitat assessments were conducted for six species: northern long-eared bat, red-cockaded woodpecker, bald eagle, Dismal Swamp southeastern shrew, Mabee's salamander, and barking tree frog. Habitat assessments were conducted from April 2015 to July 2015. Based on the results of the habitat assessment and DGIF recommendations, VDOT conducted presence/absence surveys for the barking tree frog and Mabee's salamander during the respective species sampling seasons in 2015. VDOT conducted a field review of potentially suitable sampling sites with DGIF and chose four Mabee's salamander sampling sites and ten barking tree frog sampling sites.*

*The potential impacts to threatened or endangered species resulting from the project have been reduced through use of design measures such as bridging, countersinking culverts, and reducing the roadway footprint and median width. In addition, temporary impacts will be reduced through proper location and minimization of staging areas, construction access roads, and modifying construction techniques in valuable habitats. As a result of the implementation of the aforementioned conservation measures, coordination, and due diligence, no further action or coordination with USFWS, DGIF, or DCR is required.*

### C.7 Invasive Species

**Summary of Comments:** One comment was received related to invasive species. The Virginia Department of Conservation and Recreation, Natural Heritage Program noted the potential for the establishment of invasive species in the study area and made recommendations related to disturbance and revegetation.

**Response:** *In accordance with Executive Order 13112 Invasive Species, VDOT has developed provisions in their Road and Bridge Specifications to minimize the potential for the establishment of invasive terrestrial or aquatic animal or plant species during construction. These provisions require prompt seeding of disturbed areas with mixes that are tested in accordance with the Virginia Seed Law and VDOT's standards and specifications to ensure that seed mixes are free of noxious species. While the proposed project area would be vulnerable to the colonization of invasive plant species from adjacent properties, implementation of the stated provisions would reduce the potential for the establishment and proliferation of invasive species.*

### C.8 Avoidance, Minimization, and Mitigation

**Summary of Comments:** Several agencies and special interest groups submitted comments emphasizing the need to avoid impacts to environmental resources where possible and minimize those impacts where they cannot be avoided. Six comments referenced mitigation requirements for unavoidable impacts. Examples of these comments include:

- We support the development of mitigative measures for all impacts to natural resources that may result from this project if permitted.



- It is important that a full accounting be provided of all anticipated impacts so that full mitigation-avoidance, minimization and compensation for impacts-can occur.
- EPA encourages additional considerations be made for avoidance and minimization of impacts to waters of the U.S. during design. This includes additional bridging and avoiding and minimizing overall impacts with special emphasis on high value resources which provide high function and value to the wetland systems and complexes and to the watersheds.

**Response:** *As the FHWA/VDOT Preferred Alternative design for the permit application has been developed, VDOT worked closely with the USACE and FHWA, as well as, DEQ, and VMRC, to identify opportunities to further avoid and minimize impacts to environmental resources, particularly wetlands and streams. Compensation or mitigation for unavoidable impacts is proposed by VDOT as part of the CWA Section 404 permit application. Avoidance and minimization measures implemented through the development of the FHWA/VDOT Preferred Alternative are documented in detail in the **Supplemental Alternatives Technical Report** (VDOT, 2016e) and summarized in **Chapter 2.0** as well as **Section 3.4** of the Final SEIS. Additional details on the Compensatory Mitigation Plan included in the JPA are described in the **Supplemental Natural Resources Technical Report** (VDOT, 2016f) and **Section 3.4** of the Final SEIS.*

### C.9 Air Quality

**Summary of Comments:** One comment was received related to air quality. The Virginia Department of Environmental Quality noted its regulatory authority to enforce the Clean Air Act.

**Response:** *The **Air Quality Analysis Technical Report** (VDOT, 2014d) and the **Supplemental Air Technical Report** (VDOT, 2016d) provides detailed discussion on the implications the proposed alternatives, including the FHWA/VDOT Preferred Alternative, would have on Clean Air Act initiatives and programs. For the FHWA/VDOT Preferred Alternative in the design year, there could be higher MSAT emissions in some locations within the study area including the eastern termini, Route 460 mainline, and new alignment locations relative to the No Build Alternative due to higher vehicle miles traveled (VMT), and there could also be increases in MSAT levels in a few localized areas where VMT is projected to increase compared to the No Build Alternative. However, EPA's vehicle and fuel regulations are expected to result in significantly lower MSAT levels in the future than exist today within the project corridor.*

### C.10 Noise

**Summary of Comments:** Eight comments focused generally on the potential for noise increases during and after construction of the proposed alternatives. Commenters also noted the need for a noise study and how certain alternatives would produce increased noise levels on their property. Some examples of these comments concerning noise impacts included:

- Noise will be awful if current road is widened.
- I asked VDOT this question...about noise conservation issues and was told this would be a study later on in the future. Why would you do a noise study after the road is put in place? I moved to the country for the peace & quite [sic] as well as the hunting.
- Given a projected noise level increase of +20 dBA (38 dBA existing, 59 to 63 dBA after construction) at my location (receptor CNE 103-01, Appendix H, "Noise Modeling Results", sheet 41 of 49), this would be an unacceptable impact on the peace and quiet of my rural residence. This represents more than double the VDOT dB value definition of "substantial increase" or an 8 fold increase in noise. In addition, there is a planned noise barrier on the south side of the alignment (barrier 2N-

05), which, given the absence of a barrier on my side, would serve as an effective noise-reflective surface effectively increasing the noise at my property. Also, given the absence of a barrier and the curve of the roadway, there is a potential for eastbound traffic headlights at night being directed squarely at my home...I would also strongly urge VDOT to utilize the latest in "Quiet Pavement" technology, regardless of the status of any current studies or which alternative is finally chosen. It makes zero sense to build a new, 50 mile major roadway designed for a long life without utilizing the current state of the art in materials science and technologies.

**Response:** *The Noise Analysis Technical Report (VDOT, 2014j) provides detailed analysis of the potential noise increases associated with each alternative. This analysis has been updated to address the FHWA/VDOT Preferred Alternative and summarized in Section 3.7 and Appendix E of the Final SEIS. The analysis and Final SEIS explains the requirements for considering noise mitigation using a variety of means including soundwalls and how these structures would reduce potential noise impacts, where they have been identified to be reasonable and feasible. The Final SEIS also explains how a final design noise analysis will be conducted during final design to ensure noise impacts are identified and mitigation considered in accordance with VDOT's noise abatement policy.*

*Whenever the Commonwealth Transportation Board or the Department plan for or undertake any highway construction or improvement project and such project includes or may include the requirement for the mitigation of traffic noise impacts, first consideration is given to the use of noise reducing design and low noise pavement materials and techniques in lieu of construction of noise walls or sound barriers. Vegetative screening, such as the planting of appropriate conifers, in such a design would be utilized to act as a visual screen if visual screening is required. However, FHWA's "Guidance on Pavement as a Noise Abatement Measure" suggests that studies on the noise reduction properties of pavement show that the pavement type or texture's ability to provide a noise reduction declines as the pavement ages, which would result in the abatement measure no longer fulfilling its intended abatement commitment. Furthermore, VDOT is not authorized by the Federal Highway Administration to use "quiet pavement" as a form of noise mitigation. A Quiet Pavement Pilot Program is required by FHWA. Upon the VDOT's completion of the Quiet Pavement Pilot Program and approval from FHWA, the use of "quiet pavement" will be given additional consideration for future projects.*

### **C.11 Right of Way Impacts / Community Impacts / Environmental Justice and Economic Impacts / Access Issues**

**Summary of Comments:** Property impacts along the Route 460 corridor was identified as one of the top concerns among the feedback received during the Draft SEIS public comment period and mentioned in 176 (33 percent) of the comments submitted. Commenters questioned the need for impacts to their specific property and expressed a desire for farmland, community facilities and businesses, and private property impacts to be reduced or avoided. Some comments suggested that towns could be destroyed by the proposed alternatives while others suggested that confining proposed improvements to existing Route 460 would avoid impacts to farmlands and other private properties. Commenters noted that the property owners impacted by the Preferred Alternative would not necessarily benefit from the transportation improvements. Commenters also noted a desire to preserve access between properties and Route 460. Examples of these comments include:

- This project greatly impacts people who won't necessarily be benefitted by it. There are ancestral homes, thriving farms, small towns with no need to vastly "improve" US 460.

- If you rebuild existing 460 it will destroy existing towns and homes as well as churches and businesses
- Try to stay away from farm land stay on Rt 460 - save money
- Go around towns to avoid churches and businesses
- Only take land that is necessary & no more businesses than is needed
- Will citizens get the correct value for their property?
- Please make sure there is easy access into the cities. Alt 1&3 take people too far from the businesses and not [sic] good access back to the businesses.

**Response:** *The improvements associated with the FHWA/VDOT Preferred Alternative greatly reduce the number of property impacts estimated for the different alternatives in the Draft SEIS (see Section 3.2). This alternative responds to many public comments calling for no improvements to be made to the corridor, as described in Section B.6 of this report. In the eastern end of the study area, where improvements were most deemed necessary, the alignment bypasses the Town of Windsor and the area between Windsor and Route 58 to avoid and minimize direct impacts to community facilities, businesses, and more densely populated areas; however, it does impact several farms and properties. West of Windsor, where the Preferred Alternative is on the existing Route 460, a narrowest typical section practicable was used to minimize impacts to adjacent property owners. During the development of the Final SEIS, the project team visited a number of the potentially affected properties and met with the owners and farmers, identified by the Virginia Department of Agriculture, to discuss the potential impacts and means of avoiding unnecessary property takes. When it was possible, the alignment of the FHWA/VDOT Preferred Alternative was shifted to reduce or avoid impacts. VDOT's right of way process is documented in VDOT's "A Guide for Property Owners and Tenants." The indirect effects to properties that are bypassed also have been considered in Chapter 4 of this Final SEIS.*

## C.12 Cultural Resources

**Summary of Comments:** Commenters noted the location of historic properties along the different alternatives. Commenters expressed concern about potential impacts to these properties and what those impacts would represent to local, regional, and national history. Examples of these comments include:

- Do not disregard the history of our 85 year old Diner- a historical tradition to most Virginians.
- I, also, live next to a home area established around 1750 and registered with the National Register of Historical Homes. All northern bypasses go directly through the back yard of the estate.
- And definitely it would affect mine because I have cemeteries up there with families that have been buried in there since the early 1700s.
- There's quite a few historical buildings in the track before and after Zuni that may be lost. And even though they may not be on the historical register of the federal government, they are still historic buildings and that consideration needs to be taken as to what to do with them if they can't be moved.

**Response:** *Archeological and architectural resources are documented in the **Archaeological Assessment** (VDOT, 2014a), the **Architectural Survey** (VDOT, 2014b), and **Archaeological Survey Report** (VDOT, 2016a). The findings of these documents are summarized in Section 3.8 of the Final SEIS. As noted in Section 3.8, the FHWA/VDOT Preferred Alternative will not adversely impact any historic architectural properties and any potentially historic archeological sites that have been found to be worthy of preservation*

in place. The Virginia Department of Historic Resources provided their concurrence with these findings in January 2016.

### C.13 Indirect Effects and Cumulative Impacts

**Summary of Comments:** Comments on indirect effects and cumulative impacts focused on three topics: the indirect impacts that the proposed alternatives may have on towns and individual properties, the indirect impacts that the proposed alternatives may have on surrounding natural resources and the methodology used to conduct the indirect effects and cumulative impact analysis. Some examples of comments regarding indirect effects and cumulative impacts are listed below:

- OPTION 2 will have the least number of the hugely expensive interchanges which historically open up productive farm and forestal land to potential induced development.
- Upgrading and enlarging the existing route would displace more businesses and provide the least amount of induced growth.
- If you bypass Windsor on the north route, you just put a fence or a barrier around the town. No more growth. You have the railroad to the south and the highway to the north.
- The Draft SEIS does indicate that building the numerous proposed new rural interchanges on a new Route 460 or new bypasses outside of existing towns along the corridor would put significant additional natural resources at risk due to expected induced growth. In contrast to improvements focused on the existing Route 460, which are not expected to induce any growth, new development related to Alternative 1's nine interchanges are estimated to put at risk nearly 15,000 additional acres of wetlands and 19,000 acres of wildlife habitat, as well as over a hundred miles of streams.
- Other potential indirect impacts to the aquatic system may include dust from construction activities, noise, shading, introduction of invasive species, and disturbance due to temporary construction staging. Noise, dust, fragmentation, and invasive species can alter the plant and animal communities. Indirect impacts to wetlands and streams from construction activities, traffic operation, and maintenance as well as from secondary growth and development have the potential to impact the wetlands and stream miles downstream, potentially to the critical bay and estuary resources. These indirect impacts should be further evaluated in the FSEIS once the preferred alternative is chosen.
- The DSEIS incorporates the North Carolina Department of Transportation's guidelines for indirect and cumulative effects analysis. This approach allows for analysis of potential impacts identified at a specific distance from designated interchanges where induced growth may occur. The induced growth area encompasses the area within one mile of the interchange in addition to feeder roads leading to the interchange. The induced growth area associated with the feeder road includes a 1,000 foot buffer extending from the intersection for two miles. The DSEIS states that the full analytical methods were not used as the large amount of required natural resource data within the study area were not gathered. The analysis offers narrative responses reporting the potential cumulative impacts of which the majority of reported impacts are generally characterized as "limited" in Table 4.3-6. However, the document does offer the following figures for relative comparison including: within the induced growth zone, Alternatives 1, 3, 5N and 5S show approximately 14,000 acres of wetlands; Alternative 3 has 813,092 linear feet stream channel; Alternative 1 will impact the largest number of streams at 241. The information provided in the DSEIS figures indicate that there is a significant amount of resource at risk due to induced growth. Alternative 4 is not anticipated to have induced growth. Given the potential scope and scale of impacts, it is unclear how the potential impacts related to induced growth are considered relatively

"limited". These impacts should be considered when determining the preferred alternative and the effect it will have on the local environment.

**Response:** *The FHWA/VDOT Preferred Alternative is limited to 16 miles of proposed improvements on the eastern end of the study corridor, thereby limiting the potential for indirect effects and related induced growth, compared to the Draft SEIS Build Alternatives. The anticipated induced growth areas include access points to the west and east of Windsor and the project's eastern terminus at the following locations: Route 460 intersection (west of Windsor), Route 460 interchange (east of Windsor), and Route 58 interchange. Based on the existing development that has been identified within the designated growth areas along existing Route 460, land is available where development has been designated within the Windsor DSD and Suffolk's Central Growth Area. Some additional development and associated indirect effects will likely continue along existing Route 460, where existing development would be bypassed by the FHWA/VDOT Preferred Alternative, such as in Windsor; however, the pace of growth along the existing Route 460 corridor may slow with the implementation of the FHWA/VDOT Preferred Alternative, as development may shift to the induced growth areas.*

*The indirect effects of FHWA/VDOT Preferred Alternative on land use, economic development and private property are discussed further in Sections 4.2.3.2, 4.2.4.1, 4.2.5, 4.2.6.1, 4.2.7.1, and 4.2.8.1 of the Final SEIS. With regards to indirect effects on natural resources, the FHWA/VDOT Preferred Alternative has a limited amount of associated induced development and indirect effects compared to the alternatives presented in the Draft SEIS. See Sections 4.2.4.2, 4.2.5, 4.2.6.2, 4.2.7.2, and 4.2.8.2 for a full discussion of the indirect effects to natural resources. The FHWA/VDOT Preferred Alternative would be accompanied by the required stormwater management best management practices, further reducing indirect impacts, particularly to downstream aquatic resources. The reduced indirect impact of the FHWA/VDOT Preferred Alternative was considered in VDOT's recommendation that it is the Least Environmentally Damaging Practicable Alternative.*

*With regards to cumulative impacts, the implementation of the FHWA/VDOT Preferred Alternative has been considered in conjunction with the influential cumulative impacts of historic and expected future development, forestry, and farming actions in the study area. Chapter 4 of the Final SEIS provides additional discussion of the specific indirect effects and cumulative impacts related to the FHWA/VDOT Preferred Alternative; Table 4.3–6 in the Final SEIS provides an overview and assessment of cumulative impacts.*

## D. Permitting

**Summary of Comments:** One comment was received from the Virginia Department of Environmental Quality, indicating that the Route 460 project should comply with the Coastal Zone Management Act of 1972.

**Response:** *Through the development of the Final SEIS and as part of the Section 404 permit application, VDOT has provided the Virginia Department of Transportation's Consistency Certification and necessary data and information under Coastal Zone Management Act (CZMA) Section 307(c)(3)(A) and 15 CFR Part 930, subpart D, for the project, and is seeking concurrence from DEQ that the proposed activity complies with the enforceable policies of Virginia's Coastal Zone Management Program (CZMP) and will be conducted in a manner consistent with the Program. The FHWA/VDOT Preferred Alternative will be constructed according to an approved erosion and sediment control plan and a stormwater management*



plan. With concurrence from DEQ that the proposed activity complies with CZMP, adherence to these mitigation measures and any required permits will provide consistency with the enforceable policies of the Virginia CZMP.

### **E. Shirley T. Holland Intermodal Park / Norfolk Southern Access / Other Economic Development Issues**

**Summary of Comments:** Thirty-five commenters emphasized concerns for providing access to the Shirley T. Holland Commerce Park, located just to the east of the Town of Windsor and south of existing Route 460. In addition, the adjacent property owned by Norfolk Southern was referenced along with several other sites along the Route 460 corridor, where commenters suggested the implementation of the project was needed for potential for economic development to occur. Of the comments provided on this issue, some examples are provided below:

- A southern route through the town of Windsor will support economic development and community growth
- The county has invested several million dollars in infrastructure improvements for the 1,500 acre Shirley T. Holland Intermodal Park located along the existing Route 460. This has resulted in \$260 million in private investment and approximately 1,000 new jobs. The county is currently marketing an additional 1,100 acres in the park. Norfolk South Corporation owns another 1,700 acres adjacent to the park. The need to accommodate rail service to both of these sites is critical for their development.
- These parcels with thousands of acres are designed to support the expansion of the Port of Virginia, to help move containers from the port more efficiently, and to attract businesses and industry who want to use the ports for exporting goods. All of this is important to the economic growth of our state.
- The NS-owned IoW property, particularly in conjunction with the adjacent additional 1,000 acres owned by the County, is a mega-site unique in its characteristics for the Commonwealth. If proper rail and roadway access is denied in the process of the Route 460 Project, Virginia will have destroyed probably the best vehicle by which to attract a major industry, such as large metal fabrication, chemical-based or automotive-related investment. Further, the mega-site can be developed as a means to insert Virginia more aggressively into a Distribution Center (DC) strategy, particularly in tandem with VPA strategies on the same.

**Response:** Throughout the Route 460 corridor, local governments have included improvements to Route 460 in their comprehensive plans and/or previously supported the project via resolutions passed by their respective Boards of Supervisors. As a result, the Draft SEIS identified a need to address local economic goals as one element of the project's intended purpose. While this element of need continued to be acknowledged during the development, recommendation, and selection of the Preferred Alternative, other considerations such as environmental impacts and financial considerations played a big role in the scope and final location of the FHWA/VDOT Preferred Alternative. For example, the Draft SEIS, as well as the initial hybrid development efforts that followed, revealed that a southern bypass alignment around the Town of Windsor would result in approximately 60 additional acres of wetland impacts compared to a northern route. As a result, a southern bypass around the Town of Windsor was not carried forward as part of the FHWA/VDOT Preferred Alternative because the associated resource impacts were anticipated



*to be too great. However, the FHWA/VDOT Preferred Alternative would be consistent with the plans of Suffolk and Isle of Wight County for economic development. Both municipalities identify the area around the new 460 interchanges / intersections as growth areas. The Preferred Alternative includes an interchange just east of the Town of Windsor, in close proximity to both the Norfolk Southern property and the planned inter-modal park. Both this interchange and just west of Windsor are located at the Windsor Development Service District.*

*Based on the information presented in this Final SEIS, improvements to transportation within the study area will provide for increased mobility for freight movement and address local plans to varying degrees. The FHWA/VDOT Preferred Alternative would address the plans of the City of Suffolk and Isle of Wight County for economic development. Both municipalities identify the area around the new 460 interchanges/ intersections as growth areas. The Isle of Wight County plan acknowledges Route 460 as representing short and long term economic development potential for the community. Likewise, Suffolk's Comprehensive Plan notes that investment in the Route 460 corridor is critical to the City's economic development and crucial to the City's access to regional markets (City of Suffolk, 2015). Additionally, the FHWA/VDOT Preferred Alternative, by improving traffic movement through and around the Town of Windsor and by providing an interchange of existing 460 with the new roadway east of Windsor in proximity to the planned industrial area, would provide access to the existing and planned expansion of the industrial area (Shirley T. Holland Intermodal Park), giving potential businesses access to freight routes and ports in Hampton Roads. The proposed Route 460/Route 460 interchange east of Windsor would tie into the left-turn lane and intersection of existing Route 460 at Old Mill Road (Route 607), which would accommodate the anticipated traffic movements to and from the Shirley T. Holland Intermodal Park.*

*Although improvements were eliminated elsewhere along the Route 460 corridor based on environmental impacts and cost, VDOT will continue to work with local governments and planning organizations to identify specific transportation improvements within their jurisdiction that meet applicable screening criteria, which includes economic development, outlined in House Bill Two's (HB2) current policy guidance. Once these other transportation improvements are identified, then project scope, schedule, and costs can be developed independent of the proposed Route 460 improvements.*

## **F. Project Costs**

**Summary of Comments:** Consideration of costs associated with alternatives evaluated in the Draft SEIS were among many of the comments received. A number of comments suggested that the alternatives evaluated were a waste of money or too costly; as a result, these comments were considered to be unsubstantive statements of opinion, discussed in Section J of this report. However, six commenters suggested how project costs should be calculated or questioned the means by which the cost estimates in the Draft SEIS were derived. Some examples of these are:

- Cost considerations should include operating costs to those thousands of vehicles per day that will travel between Petersburg and Suffolk daily, and not just the construction costs.
- The project should also have Life Cycle Cost analysis as a factor so that tax payers can understand the differences
- The scope of the project must not exceed the need or ability to pay for the improvements.
- My concern is that the cost / impact that is estimated in the study is significantly short of what the true costs will be. The Oct 2014 Draft SEIS is much improved over the original EIS. But there are still a lot of factors that have not been covered. VDOT has had to uncover these before, but not to

the extent that will be required for a 55 mile long highway.

- The \$974 million total shown in the SEIS for Alternative 4 is low, because it does not include the design and right-of-way cost at both termini and the number of businesses involved, at least in Windsor, is inaccurately low with the number varying greatly in different sections in the SEIS, and also with some businesses and utilities not listed.

**Response:** For the purposes of comparing alternatives evaluated in the Draft SEIS, a preliminary opinion of probable cost was developed for each of the five Build Alternatives. This planning level estimate was generated based on study specific cost opinions that included general assumptions for preliminary engineering, construction, right of way and relocations, utilities, and environmental mitigation costs that were applied consistently to each alternative. A detailed explanation of how these opinions of probable cost were developed and an itemized list of unit costs can be found in the **Alternatives Technical Report** (VDOT, 2014e).

Through the development of the FHWA/VDOT Preferred Alternative and the additional design information associated with the permit application, cost opinions for the FHWA/VDOT Preferred Alternative were refined and carried forward into the Final SEIS based on VDOT's Hampton Roads District-wide unit price averages. The cost opinion developed for the FHWA/VDOT Preferred Alternative includes detailed estimates for construction, right of way, utilities, and environmental mitigation. A detailed cost estimate for the FHWA/VDOT Preferred Alternative is provided in the **Supplemental Alternatives Technical Report** (VDOT, 2016e) and summarized in **Section 2.6** of the Final SEIS. Costs estimates will be further refined during future phases of project development as additional design information is developed.

During the identification of the FHWA/VDOT Preferred Alternative, a Benefit-Cost Analysis (BCA) conceptual framework was performed to measure the potential benefits generated by the proposed improvements in financial terms. The results of the BCA analysis and the prescribed USDOT methodology utilized to conduct the BCA are detailed in **Appendix A** of the **Supplemental Alternatives Technical Report** (VDOT, 2016e).

## G. Funding Background

**Summary of Comments:** Seven comments provided input on contracting issues associated with the construction of the Route 460 improvements. Some commenters suggested procurement methods for the construction contractor, suggesting that the Public-Private Partnership (P3) method was unfavorable. A few commenters questioned the terms of the contract for CBA-1 from the 2008 Final SEIS, for which FHWA issued a Record of Decision.

**Response:** When the Preferred Alternative was identified, and it was not CBA 1, the prior contract for that project was terminated. Any decision regarding future contract procurement or construction methods would not be made until the stipulations provided below are met:

- The project must receive a Record of Decision from the FHWA and be granted a permit by the USACE.
- If a Record of Decision and/or a permit are not issued, the project would not advance to construction.
- If a Record of Decision is received and a permit is issued, then the project would be scored under a new state law, known as House Bill Two (HB2), which rates, prioritizes, and selects proposed

*projects for funding.*

*Major projects that would improve statewide corridors, like Route 460, are required to be scored based on an objective data-driven process. Once the Route 460 project is scored and the results of the evaluation are presented to the CTB, board members will decide whether or not to advance the project for further design and construction.*

## **H. Public Involvement / Outreach**

**Summary of Comments:** Comments from nine commenters were focused on the material the public was being provided to review and the conduct of the Location Public Hearings. The comments included:

- Also the decision may be a morphed combination of alternatives which the public has not truly been given an opportunity for comment and review.
- Why is Sussex County not shown on your map?
- The meeting in Wakefield was very confusing.
- All these hearings, all these glad handing of town councils, boards of supervisors, public hearings, they're a farce. They're required by law to find out the public's opinion and then go ahead and do it anyway.
- My concern here today is that you have a lot of people here that can't answer certain questions that's being asked or given any specifics. I understand you have to have a public hearing but we definitely need to know if we can get some answers as far as the things we don't understand.
- Therefore, since I do not live in a heavily populated area, like a neighborhood, I am concerned that my voice will not be heard as loud as someone or the individuals that live in a more heavily populated area.
- All I can see is gray, a little bit of green here. The roads are not amplified. So I can't tell you where my backyard is. Now I know where the existing road is going to go. But I come over there and you cannot see where my house is. That's the only thing everybody else wants. That's what they want to know. So they're walking around. So your maps, all you've done is showed how great your road's going to be. Showed me where, how pretty your green is and how bright your red is. But when my, when you're looking for my backyard, I can't find it. So all the people here are wasting their time.
- But my comment here tonight is that, first of all, up online on the VDOT site where there's a great thing of information to be downloaded, but it is extremely large and extremely cumbersome to get it off of there, where over 90 percent of the general public will have no clue how to even glean it off of your site.
- Then the documents that are in there to be gone over would take an individual almost two weeks to even halfway digest the wealth of information there. Inside of that information is particularly information on each alternative bill, which the individuals here tonight would have to had digested in order to make a competent opinion on what they are being, you're asking evaluation on.

**Response:** *FHWA, USACE, and VDOT acknowledge there is a great deal of information presented in the SEIS and associated technical documents. This level of detail was deemed to be necessary to inform the federal agency's decision making processes, as well as permit activities, particularly given the size of the study area and the alternatives and the potential for extensive impacts to the social and natural environment. The Executive Summary of the SEIS, along with the Location Public Hearing materials, was designed to summarize this information for the public. In addition to the Location Public Hearings, VDOT staff also met with elected officials throughout the study area. These meetings were held to provide*

information to these officials who could then present it to their constituents. At all of these meetings, contact information and comment forms were provided for the public to seek additional information and/or clarification. At public meetings, individuals were assisted one-on-one with such matters as finding their property in relation to the Build Alternatives.

Because the Draft SEIS included five different alignments that each spanned approximately 50 miles, it was difficult to present more detailed views of individual properties without greatly increasing the volume of documentation. The figures were labeled and presented in a manner that best summarized the potential alignments without cluttering the display with extra information. The Photointerpretation Mapping Report provides a more detailed illustration of the alignments considered in the Draft SEIS. **Chapter 2.0** in the Final SEIS provides a more detailed illustration of the FHWA/VDOT Preferred Alternative.

Following the CTB's decision on the FHWA/VDOT Preferred Alternative and throughout the development of the Draft and Final SEIS, public involvement has remained a critical component. VDOT has met with individuals and groups, including property owners and localities, and directly reached out to over 1,180 people through mailings and electronic newsletters. Monthly email updates and press releases have been circulated to keep the public informed regarding the project status. Public meetings were held in May 2015 to present the FHWA/VDOT Preferred Alternative to the public and explain the process for its identification.

The FHWA/VDOT Preferred Alternative is a hybrid of the alternatives presented in the Draft SEIS, and this Final SEIS explains how that hybrid was developed and has been made available for public review. In addition, USACE issued a Public Notice of the receipt of the application for the FHWA/VDOT Preferred Alternative and solicited public comment. USACE will respond to comments received on its Public Notice at the time it makes a permit decision.

## **I. Additional Coordination or Analysis Requested / Questions on Documentation Validity / Miscellaneous Comments Requiring Specific Response**

Eight commenters expressed a need for additional information to be included in the evaluation of alternatives or questioned the validity of the analyses included in the Draft SEIS. Several comments also suggested that necessary documentation was omitted from the Draft SEIS. These comments are summarized individually and a response to each is provided.

**Comment Summary:** One commenter noted that economic impact on businesses to be displaced and the loss of meals and businesses taxes to the towns along the Route 460 corridor was not fully evaluated.

**Response:** The Draft SEIS included consideration of economic impacts, which is documented in the *Socioeconomic Technical Report* (VDOT, 2014n). This documentation considered the potential loss of property tax revenues and business displacements associated with each of the alternatives evaluated. The Draft SEIS also considered the potential indirect effects and cumulative impacts to the economic character of the Route 460 corridor. These analyses have been updated in the Final SEIS as they relate specifically to the FHWA/VDOT Preferred Alternative.

**Comment Summary:** One commenter suggested that while the Build Alternatives on new location (Alternatives 1 and 3 and the bypasses of Alternatives 2 and 5) would provide two routes for emergency evacuation contraflow, these routes would be blocked by flooding.

**Response:** *In order to satisfy the hydraulic requirements of state and federal agencies, the Build Alternatives were developed to accommodate the FEMA 100 year flood elevation. Specifically for the FHWA/VDOT Preferred Alternative, additional height was added to the new Blackwater River Bridge to accommodate the level of historic flooding events, which have risen to an elevation approximately five feet higher than the 100 year flood elevation four times in the past 15 years.*

**Comment Summary:** One commenter noted that the number of injuries and accidents presented in the Draft SEIS are far below the Virginia averages, while the number of fatalities exceeds the average. This comment questioned the cause for these incidences and where they occurred.

**Response:** *For safety analyses, VDOT relies on crash data generated by the Virginia Department of Motor Vehicles. This data set includes a number of metrics collected at the time of each incident including location, weather conditions, and type of crash that occurred. For the purposes of analyzing safety in the corridor, information regarding the type of collisions and whether or not these incidents included injuries or fatalities was captured. The type, location and specific details of crashes along the Route 460 corridor are documented in the **Traffic and Transportation Technical Report** (VDOT, 2014o).*

*As indicated in the traffic analysis for the FHWA/VDOT Preferred Alternative (see **Section 2.8.2** of the Final SEIS and the **Supplemental Traffic and Transportation Technical Report** (VDOT, 2016h)), the number of persons killed per 100 million vehicle miles (100 MVM) traveled is lower between Ivor to Suffolk, where improvements are approximately proposed, than the overall Route 460 study corridor between Petersburg and Ivor, where the No Build Alternative from the Draft SEIS has been selected. However, the number of persons injured and the total crash rate is much greater in this area, at 65 percent and 60 percent respectively, due to increased intersection densities and conflict points. Improved mobility due to truck traffic diversion to a new route would decrease conflict points along the FHWA/VDOT Preferred Alternative and the potential for incidences.*

**Comment Summary:** Mayor Richardson of the Town of Windsor suggested discrepancies in the information presented in the Draft SEIS regarding the number of business displacements presented throughout the document as a result of the improvements associated with Alternative 4. Similarly, another commenter pointed out missing information in the Draft SEIS, pointing specifically to Figure 3.8-1, which identified above ground historic resources in the study area but did not map all of the resources listed.

**Response:** *Displacements and other impact data presented in the Draft SEIS and associated technical reports have been reviewed and updated for consistency in the Final SEIS, which includes the anticipated impacts of the FHWA/VDOT Preferred Alternative. Throughout the development of the Draft and Final SEIS, public involvement has remained a critical component. Among the efforts to keep the public informed, several meetings with the Windsor Town Council, including one in March 2014 were conducted to discuss potential concerns regarding the Route 460 project. Through coordination with the Town of Windsor, Mayor Richardson's specific comments regarding displacements were evaluated and addressed.*

*With regards to historic properties, some architectural resources listed on Figure 3.8-1 were not shown on a public exhibit due to the cultural sensitivity associated with them. Figure 3.8-1 in the Draft SEIS also notes that archeological resources are not shown. In the Final SEIS updated data and information have been reviewed for accuracy. All historic resources and displacements, including any that were not displayed or that were clarified and understood following coordination with the Town of Windsor, were considered in comparing the alternatives and identifying the Preferred Alternative.*



**Comment Summary:** The Southern Environmental Law Center provided input on the need for additional recognition of climate change considerations in the Final SEIS, including consideration of greenhouse gas emissions as well as the potential impacts to the natural resiliency of wetlands and forests along the study corridor.

**Response:** *To assist with the identification of potential project impacts that may be exacerbated by climate change and to inform considerations of climate resiliency, greenhouse gas emissions have been considered for the proposed FHWA/VDOT Preferred Alternative in Section 3.6.6.4 of the Final SEIS and Supplemental Air Technical Report (VDOT, 2016d).*

**Comment Summary:** The Hampton Roads Transportation Organization provided feedback on the Draft SEIS, which included some questions regarding the documentation and data presented. These specific suggestions and questions are listed below and the respective responses follow.

Pg. 12: How do these percentages of truck crashes compare to the percentage of truck VMT?

Pg. 13: The last sentence refers to CMFs in Appendix L. However, I did not actually see any reference to CMFs in Appendix L.

**Response:** *The percentage of crashes involving trucks (12%) is lower than the truck percent of the VMT (16%); however, the percentage of fatal crashes involving trucks (45%) is higher than the truck percent of the total VMT as shown in the table below.*

Crash Data and Vehicle Miles Traveled Comparison (2010-2012)

	Non-Truck Crashes	%	Truck Crashes	%	Total
All Crashes	336	88%	44	12%	380
Fatal Crashes	6	55%	5	45%	11
Vehicle Miles Traveled (100 Million VMT)	5.0	84%	1.0	16%	6.0

*The last sentence of page 13 in Section 3.3 of the Traffic and Transportation Technical Report (VDOT, 2014o) reads, “Please refer to Appendix L: Crash Data for additional information.” Appendix L includes the more detailed crash data, including maps for reference. It was not intended that Crash Modification Factors (CMFs) would be included in that appendix.*

**Comment Summary:** The Virginia Department of Aviation provided input on the Draft SEIS that suggested coordination should occur with the Town of Wakefield throughout the project development process to insure the continuation and safety of operations at the Wakefield Airport, in accordance with the Town’s Airport Layout Plan.

**Response:** *As a result of the improvements associated with the FHWA/VDOT Preferred Alternative being reduced to the 16 miles on the eastern end of the Route 460 corridor, impacts to the Town of Wakefield and the municipal airport will not occur. However, coordination with interested stakeholders, agencies, and members of the public has been critical throughout the development of the Final SEIS.*



## **J. Miscellaneous Comments Not Requiring a Specific Response**

**Comment Summary:** These comments generally included expressions of opinion regarding potential alternatives, unsubstantiated by any supporting information, or included statements that there are higher priority funding needs around the state (e.g. deficient bridges, maintenance, paving, etc.) or sentiments about waste and how the taxpayer's money is being spent. These comments were determined to be non-substantive as they relate to the NEPA analysis and documentation and, as a result, no responses are provided. Of the 521 comments received during the formal comment period for the Draft SEIS, 241 comments included miscellaneous statements in some form or another that did not require a specific response.

## **ATTACHMENT A: DRAFT SEIS COMMENTS**



# APPENDIX E

## NOISE

US ROUTE 460 FINAL SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT



## APPENDIX E – NOISE

### E.1 INTRODUCTION

In 2014, the Virginia Department of Transportation (VDOT) conducted noise analysis for highway transportation improvement options along the existing Route 460 corridor between Interstate 295 (I-295) in Prince George County and Holland Road (Route 58) in the City of Suffolk, Virginia.

These options were evaluated in the Draft Supplemental Environmental Impact Statement (SEIS), which included analysis of five Build Alternatives and a No Build Alternative, and the result of that noise analysis can be found in the *Noise Analysis Technical Report* (VDOT 2014j). Following the publication of the Draft SEIS in September 2014, VDOT, in close coordination with FHWA, developed a Preferred Alternative that would consist of a combination of alternatives evaluated in the Draft SEIS, including the No Build Alternative and Build Alternatives 4, 2N, 3, and 1 (from west to east). This Preferred Alternative consists of implementing the No Build Alternative between I-295 and one mile west of Zuni (a distance of approximately 35 miles), upgrading the existing Route 460 between one mile west of Zuni and two miles west of Windsor, and constructing a new four-lane divided highway from west of Windsor to a new Route 460/Route 58 interchange in Suffolk.

The Preferred Alternative is a combination of the previously evaluated alternatives, and therefore the noise analysis conducted for the Draft SEIS is valid for the Preferred Alternative. Although the alignment has shifted in some locations, the impacts to each Common Noise Environment (CNE) are representative of the impacts that would be associated with the Preferred Alternative. The Preferred Alternative and potential mitigation measures will be evaluated fully during the Final Design Noise Analysis, per VDOT's State Noise Abatement Policy. The noise analysis and results of the alternatives assessed in the Draft SEIS can be found in the *Noise Analysis Technical Report* (VDOT 2014j), however, only a portion of it now pertains to the Preferred Alternative. With the decision to select the No Build Alternative between I-295 and one mile west of Zuni, the project area for purposes of the noise analysis is now defined as one mile west of Zuni to the Route 460/Route 58 interchange in Suffolk. This redefined project area includes all of the improvements proposed under the Preferred Alternative. Therefore, this document presents only the portions of the Draft SEIS noise analysis that pertain to the Preferred Alternative. For further discussion of noise regulatory requirements, traffic noise descriptors, impact criteria and methodology, the existing noise environment, construction noise considerations, and the public involvement process, refer to the *Noise Analysis Technical Report* (VDOT 2014j).

### E.2 NOISE IMPACT ANALYSIS

For all studied sites under the Preferred Alternative, the existing condition (2014) exterior noise levels range from 38 to 75 dB(A). Future design year (2040) No-Build exterior noise levels range from 39 to 77 dB(A) while the future design year (2040) build exterior noise levels for the Preferred Alternative range from 48 to 77 dB(A).

The Preferred Alternative is predicted to impact 310 noise sensitive sites under the future design year (2040) build condition - 236 residences and 74 noise sensitive sites associated with recreational areas, parks, and cemeteries (represented by 302 noise receptors). Of these impacted sites, 126 are predicted to be only impacted by traffic noise due to noise levels approaching or exceeding the Noise Abatement Criteria (NAC), 98 are only impacted because of the substantial increase criterion, 47 noise sensitive sites are

impacted by both the NAC and substantial increase criterion, and 39 impacts are assumed at locations that were considered potential acquisitions or relocations in the Draft SEIS noise analysis but are not potential acquisitions or relocations for the Preferred Alternative. By contrast, when the rail noise component is removed, only 303 noise sensitive sites, represented by 295 receptors are predicted to be impacted by traffic noise.

**Table E-1** shows a detailed summary of the impacts under the existing condition (2014), and future design year (2040) No Build Alternative and Preferred Alternative. Predicted noise impacts are separated between the eastern termini and the proposed mainline and include the contribution of rail noise.

**Table E-1: Detailed Summary of Impacts for the Preferred Alternative**

Land use	Section	Existing (2014)	No Build Alternative (2040)	Preferred Alternative (2040)	Preferred Alternative w/out Rail (2040)
	Total Impacts				
Residential	Mainline	34	38	142	135
	Eastern Terminus	86	88	95	95
Recreational/ Parks/Cemeteries	Mainline	1	1	68	68
	Eastern Terminus	4	7	5	5
Interior	Mainline	0	0	0	0
	Eastern Terminus	0	0	0	0
Commercial	Mainline	0	0	0	0
	Eastern Terminus	0	0	0	0
Subtotal Total	Mainline	35	39	210	203
	Eastern Terminus	90	95	100	100
Total		125	134	310	303

For the Preferred Alternative, under the future design year (2040) build condition, the dominant source of noise for the predicted noise impacts are summarized below:

- Impacted sites within Common Noise Environment (CNE) 047, CNE 049 to CNE 052, CNE 100, CNE 102 to CNE 108, and CNE 165 represent residences, recreational areas, a cemetery, and a National Register of Historic Places (NRHP) property which are predicted to be impacted by traffic noise from the Preferred Alternative. Predicted noise impacts include the athletic fields at Nansemond-Suffolk Academy (CNE 052), the NHRP listed William Scott Farmstead (105-22), and the Bradshaw Cemetery (107-16).
- Impacted sites within CNE 053, CNE 158 to CNE 160, and CNE 229 to CNE 231 represent residences which are predicted to be impacted by traffic noise from existing Route 460.
- Impacted sites within CNE 160 and CNE 161 represent residences which are predicted to be impacted by a combination of rail noise and traffic noise from US Route 460. Sites 160-03 to 160-06, 161-14, and 161-15 represent residences that are predicted to be impacted by rail noise. The other impacted sites within these CNEs are predicted to be impacted by traffic noise from the Preferred Alternative.
- Impacted sites within CNE 058, and CNE 60 to CNE 62 represent residences and recreational areas which are predicted to be impacted by traffic noise from existing Route 58. Predicted noise impacts

include the residences at the Sadler Pond Apartments (CNE 058), recreational areas at the Elephant's Fork Elementary School (CNE 060), and the recreational area at the Liberty Baptist Church (CNE 062).

- Impacted sites within CNE 160 and CNE 161 represent residences which are predicted to be impacted by a combination of rail noise and traffic noise from US Route 460. Sites 160-03 to 160-06, 161-14, and 161-15 represent residences that are predicted to be impacted by rail noise. The other impacted sites within these CNEs are predicted to be impacted by traffic noise from the Preferred Alternative.

The predicted noise levels evaluated for the existing condition, future design year No-Build, and future design year build condition for the Preferred Alternative are shown in **Table E-2** below by receptor and CNE, including rail noise.



Table E-2: Predicted Noise Levels

Receptor Number	NAC	Noise Abatement Criteria (dBA)***	Land Use	No. of Dwelling / Recreational Units*	Predicted Noise Levels (dBA)									
					Existing Condition (2014) with rail (dBA)	Existing Condition (2014) w/out rail (dBA)	Rail Noise Difference (dBA)**	No Build Alternative (2040) with rail (dBA)	No Build Alternative (2040) w/out rail (dBA)	Rail Noise Difference (dBA)**	Previous Alternative Equivalent	Preferred Alternative (2040) with rail (dBA)	Preferred Alternative (2040) w/out rail (dBA)	Preferred Alternative Rail Noise Difference (dBA)**
CNE 47														
047-01	B	52	Residential	1	42	42	0	43	43	0	3	68	68	0
047-02	B	52	Residential	1	42	42	0	44	44	0	3	75	75	0
CNE 48														
048-01	B	52	Residential	1	42	42	0	44	44	0	3			
048-02	B	52	Residential	1	42	42	0	44	44	0	3			
CNE 49														
049-01	B	54	Residential	1	44	44	0	45	45	0	3	63	63	0
049-02	B	54	Residential	1	44	44	0	46	46	0	3	63	63	0
CNE 50														
050-01	B	52	Residential	1	42	42	0	44	44	0	3	67	67	0
050-02	B	52	Residential	1	42	42	0	44	44	0	3	64	64	0
050-03	B	52	Residential	1	42	42	0	43	43	0	3	59	59	0
050-04	B	52	Residential	1	42	42	0	44	44	0	3	60	60	0
050-05	B	52	Residential	1	42	42	0	43	43	0	3	57	57	0
050-06	B	52	Residential	1	42	42	0	44	44	0	3	62	62	0
050-07	B	52	Residential	1	42	42	0	44	44	0	3	65	65	0
050-08	B	52	Residential	1	42	42	0	44	44	0	3	72	72	0
050-09	B	52	Residential	1	42	42	0	44	44	0	3			
050-10	B	53	Residential	1	43	43	0	45	45	0	3			
050-11	B	53	Residential	1	43	43	0	45	45	0	3			
CNE 51														
051-01	B	54	Residential	1	44	44	0	46	46	0	3			
051-02	B	54	Residential	1	44	44	0	46	46	0	3	66	66	0
051-03	B	54	Residential	1	44	44	0	46	46	0	3	64	64	0
051-04	B	55	Residential	1	45	45	0	47	47	0	3	60	60	0
051-05	B	55	Residential	1	45	45	0	47	47	0	3	57	57	0
051-06	B	56	Residential	1	46	46	0	48	48	0	3	56	56	0
051-07	B	56	Residential	1	46	46	0	48	48	0	3	55	55	0
051-08	B	56	Residential	1	46	46	0	48	48	0	3	56	56	0
051-09	B	56	Residential	1	46	46	0	48	48	0	3	55	55	0
051-10	B	56	Residential	1	46	46	0	48	48	0	3	55	55	0
051-11	B	57	Residential	1	47	47	0	48	48	0	3	54	54	0

Receptor Number	NAC	Noise Abatement Criteria (dBA)***	Land Use	No. of Dwelling / Recreational Units*	Predicted Noise Levels (dBA)									
					Existing Condition (2014) with rail (dBA)	Existing Condition (2014) w/out rail (dBA)	Rail Noise Difference (dBA)**	No Build Alternative (2040) with rail (dBA)	No Build Alternative (2040) w/out rail (dBA)	Rail Noise Difference (dBA)**	Previous Alternative Equivalent	Preferred Alternative (2040) with rail (dBA)	Preferred Alternative (2040) w/out rail (dBA)	Preferred Alternative Rail Noise Difference (dBA)**
051-12	B	57	Residential	1	47	47	0	49	49	0	3	54	54	0
051-13	B	57	Residential	1	47	47	0	49	49	0	3	53	53	0
CNE 52														
052-01	C	57	Recreational - Athletic Fields	1	47	47	0	49	49	0	3	74	74	0
052-02	C	58	Recreational - Athletic Fields	1	48	48	0	50	50	0	3	69	69	0
052-03	C	58	Recreational - Athletic Fields	1	48	48	0	50	50	0	3	66	66	0
052-04	C	59	Recreational - Athletic Fields	1	49	49	0	51	51	0	3	64	64	0
052-05	C	60	Recreational - Athletic Fields	1	50	50	0	52	52	0	3	63	63	0
052-06	C	58	Recreational - Athletic Fields	1	48	48	0	50	50	0	3	66	66	0
052-07	C	59	Recreational - Athletic Fields	1	49	49	0	51	51	0	3	64	64	0
052-08	C	57	Recreational - Athletic Fields	1	47	47	0	49	49	0	3	74	74	0
052-09	C	58	Recreational - Athletic Fields	1	48	48	0	50	50	0	3	69	69	0
052-10	C	59	Recreational - Athletic Fields	1	49	49	0	50	50	0	3	66	66	0
052-11	C	59	Recreational - Athletic Fields	1	49	49	0	51	51	0	3	64	64	0
052-12	C	60	Recreational - Athletic Fields	1	50	50	0	52	52	0	3	63	63	0
052-13	C	58	Recreational - Athletic Fields	1	48	48	0	50	50	0	3	69	69	0
052-14	C	59	Recreational - Athletic Fields	1	49	49	0	51	51	0	3	66	66	0
052-15	C	60	Recreational - Athletic Fields	1	50	50	0	51	51	0	3	64	64	0
052-16	C	59	Recreational - Athletic Fields	1	49	49	0	51	51	0	3	66	66	0
052-17	C	60	Recreational - Athletic Fields	1	50	50	0	52	52	0	3	64	64	0
052-18	C	56	Recreational - Athletic Fields	1	46	46	0	48	48	0	3			
052-19	C	56	Recreational - Athletic Fields	1	46	46	0	48	48	0	3			
052-20	C	56	Recreational - Athletic Fields	1	46	46	0	48	48	0	3			
052-21	C	57	Recreational - Athletic Fields	1	47	47	0	49	49	0	3			
052-22	C	55	Recreational - Athletic Fields	1	45	45	0	47	47	0	3			
052-23	C	56	Recreational - Athletic Fields	1	46	46	0	48	48	0	3			
052-24	C	56	Recreational - Athletic Fields	1	46	46	0	48	48	0	3			
052-25	C	56	Recreational - Athletic Fields	1	46	46	0	48	48	0	3			
052-26	C	55	Recreational - Athletic Fields	1	45	45	0	47	47	0	3			
052-27	C	56	Recreational - Athletic Fields	1	46	46	0	47	47	0	3			
052-28	C	56	Recreational - Athletic Fields	1	46	46	0	48	48	0	3			
052-29	C	56	Recreational - Athletic Fields	1	46	46	0	48	48	0	3			
052-30	C	54	Recreational - Athletic Fields	1	44	44	0	46	46	0	3	66	66	0
052-31	C	54	Recreational - Athletic Fields	1	44	44	0	46	46	0	3	67	67	0
052-32	C	54	Recreational - Athletic Fields	1	44	44	0	46	46	0	3	68	68	0
052-33	C	55	Recreational - Athletic Fields	1	45	45	0	47	47	0	3	69	69	0

Receptor Number	NAC	Noise Abatement Criteria (dBA)***	Land Use	No. of Dwelling / Recreational Units*	Predicted Noise Levels (dBA)									
					Existing Condition (2014) with rail (dBA)	Existing Condition (2014) w/out rail (dBA)	Rail Noise Difference (dBA)**	No Build Alternative (2040) with rail (dBA)	No Build Alternative (2040) w/out rail (dBA)	Rail Noise Difference (dBA)**	Previous Alternative Equivalent	Preferred Alternative (2040) with rail (dBA)	Preferred Alternative (2040) w/out rail (dBA)	Preferred Alternative Rail Noise Difference (dBA)**
052-34	C	54	Recreational - Athletic Fields	1	44	44	0	46	46	0	3	64	64	0
052-35	C	54	Recreational - Athletic Fields	1	44	44	0	46	46	0	3	65	65	0
052-36	C	54	Recreational - Athletic Fields	1	44	44	0	46	46	0	3	66	66	0
052-37	C	54	Recreational - Athletic Fields	1	44	44	0	46	46	0	3	67	67	0
052-38	C	54	Recreational - Athletic Fields	1	44	44	0	46	46	0	3	64	64	0
052-39	C	54	Recreational - Athletic Fields	1	44	44	0	46	46	0	3	64	64	0
052-40	C	54	Recreational - Athletic Fields	1	44	44	0	46	46	0	3	65	65	0
052-41	C	54	Recreational - Athletic Fields	1	44	44	0	45	45	0	3	62	62	0
052-42	C	54	Recreational - Athletic Fields	1	44	44	0	46	46	0	3	65	65	0
052-43	C	54	Recreational - Athletic Fields	1	44	44	0	46	46	0	3	65	65	0
052-44	C	54	Recreational - Athletic Fields	1	44	44	0	46	46	0	3	64	64	0
052-45	C	55	Recreational - Athletic Fields	1	45	45	0	46	46	0	3	67	67	0
052-46	C	54	Recreational - Athletic Fields	1	44	44	0	46	46	0	3	65	65	0
052-47	C	54	Recreational - Athletic Fields	1	44	44	0	46	46	0	3	65	65	0
052-48	C	55	Recreational - Athletic Fields	1	45	45	0	47	47	0	3	69	69	0
052-49	C	55	Recreational - Athletic Fields	1	45	45	0	47	47	0	3	67	67	0
052-50	C	55	Recreational - Athletic Fields	1	45	45	0	47	47	0	3	66	66	0
052-51	C	55	Recreational - Athletic Fields	1	45	45	0	47	47	0	3	73	73	0
052-52	C	55	Recreational - Athletic Fields	1	45	45	0	47	47	0	3	70	70	0
052-53	C	55	Recreational - Athletic Fields	1	45	45	0	47	47	0	3	68	68	0
052-54	C	54	Recreational - Athletic Fields	1	44	44	0	46	46	0	3	65	65	0
052-55	C	55	Recreational - Athletic Fields	1	45	45	0	47	47	0	3	66	66	0
052-56	C	55	Recreational - Athletic Fields	1	45	45	0	47	47	0	3	68	68	0
052-57	C	55	Recreational - Athletic Fields	1	45	45	0	47	47	0	3	72	72	0
052-58	C	56	Recreational - Athletic Fields	1	46	46	0	48	48	0	3	77	77	0
052-59	C	54	Recreational - Athletic Fields	1	44	44	0	46	46	0	3	64	64	0
052-60	C	55	Recreational - Athletic Fields	1	45	45	0	47	47	0	3	65	65	0
052-61	C	55	Recreational - Athletic Fields	1	45	45	0	47	47	0	3	67	67	0
052-62	C	55	Recreational - Athletic Fields	1	45	45	0	47	47	0	3	70	70	0
052-63	C	56	Recreational - Athletic Fields	1	46	46	0	48	48	0	3	73	73	0
052-64	C	54	Recreational - Athletic Fields	1	44	44	0	46	46	0	3	64	64	0
052-65	C	55	Recreational - Athletic Fields	1	45	45	0	46	46	0	3	65	65	0
052-66	C	55	Recreational - Athletic Fields	1	45	45	0	47	47	0	3	66	66	0
052-67	C	55	Recreational - Athletic Fields	1	45	45	0	47	47	0	3	68	68	0
052-68	C	56	Recreational - Athletic Fields	1	46	46	0	47	47	0	3	71	71	0
052-69	C	54	Recreational - Athletic Fields	1	44	44	0	46	46	0	3	63	63	0

Receptor Number	NAC	Noise Abatement Criteria (dBA)***	Land Use	No. of Dwelling / Recreational Units*	Predicted Noise Levels (dBA)									
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052-70	C	54	Recreational - Athletic Fields	1	44	44	0	46	46	0	3	64	64	0
052-71	C	55	Recreational - Athletic Fields	1	45	45	0	47	47	0	3	65	65	0
052-72	C	55	Recreational - Athletic Fields	1	45	45	0	47	47	0	3	67	67	0
052-73	C	55	Recreational - Athletic Fields	1	45	45	0	47	47	0	3	69	69	0
052-74	C	60	Recreational - Athletic Fields	1	50	50	0	52	52	0	3	66	66	0
052-75	C	60	Recreational - Athletic Fields	1	50	50	0	52	52	0	3	65	65	0
052-76	C	61	Recreational - Athletic Fields	1	51	51	0	53	53	0	3	63	63	0
052-77	C	60	Recreational - Athletic Fields	1	50	50	0	52	52	0	3	65	65	0
052-78	C	61	Recreational - Athletic Fields	1	51	51	0	53	53	0	3	64	64	0
052-79	C	61	Recreational - Athletic Fields	1	51	51	0	53	53	0	3	64	64	0
CNE 53														
053-01	B	66	Residential	1	59	59	0	61	61	0	1			
053-02	B	66	Residential	1	71	71	0	73	73	0	1	71	71	0
053-03	B	66	Residential	1	71	71	0	73	73	0	1			
053-04	B	66	Residential	1	71	71	0	73	73	0	1			
053-05	B	66	Residential	1	70	70	0	72	72	0	1			
053-06	B	66	Residential	1	70	70	0	72	72	0	1			
CNE 54														
054-01	E	68	Commercial - Hotel Pool	1	58	58	0	58	58	0	1	59	59	0
CNE 55														
055-01	B	66	Residential	1	57	57	0	58	58	0	1			
CNE 56														
056-01	B	65	Residential	1	55	55	0	56	56	0	1	55	55	0
056-02	B	66	Residential	1	58	58	0	59	59	0	1	59	59	0
056-03	B	66	Residential	1	57	57	0	58	58	0	1	58	58	0
056-04	B	65	Residential	1	55	55	0	56	56	0	1	56	56	0
056-05	B	63	Residential	1	53	53	0	54	54	0	1	56	56	0
CNE 57														
057-01	B	63	Residential	1	53	53	0	54	54	0	1	57	57	0
057-02	B	65	Residential	1	55	55	0	58	58	0	1			
057-03	B	63	Residential	1	53	53	0	54	54	0	1	57	57	0
057-04	B	64	Residential	1	54	54	0	53	53	0	1	59	59	0
057-05	B	62	Residential	1	52	52	0	52	52	0	1	56	56	0
057-06	B	64	Residential	1	54	54	0	52	52	0	1	60	60	0
057-07	B	66	Residential	1	56	56	0	51	51	0	1	62	62	0
CNE 58														

Receptor Number	NAC	Noise Abatement Criteria (dBA)***	Land Use	No. of Dwelling / Recreational Units*	Predicted Noise Levels (dBA)									
					Existing Condition (2014) with rail (dBA)	Existing Condition (2014) w/out rail (dBA)	Rail Noise Difference (dBA)**	No Build Alternative (2040) with rail (dBA)	No Build Alternative (2040) w/out rail (dBA)	Rail Noise Difference (dBA)**	Previous Alternative Equivalent	Preferred Alternative (2040) with rail (dBA)	Preferred Alternative (2040) w/out rail (dBA)	Preferred Alternative Rail Noise Difference (dBA)**
058-01A	B	66	Residential	1	68	68	0	69	69	0	1	69	69	0
058-01B	B	66	Residential	1	72	72	0	72	72	0	1	74	74	0
058-01C	B	66	Residential	1	72	72	0	73	73	0	1	75	75	0
058-02A	B	66	Residential	1	69	69	0	69	69	0	1	70	70	0
058-02B	B	66	Residential	1	73	73	0	73	73	0	1	76	76	0
058-02C	B	66	Residential	1	73	73	0	74	74	0	1	76	76	0
058-03A	B	66	Residential	1	62	62	0	62	62	0	1	64	64	0
058-03B	B	66	Residential	1	65	65	0	66	66	0	1	68	68	0
058-03C	B	66	Residential	1	71	71	0	71	71	0	1	73	73	0
058-04A	B	66	Residential	1	59	59	0	60	60	0	1	62	62	0
058-04B	B	66	Residential	1	64	64	0	65	65	0	1	67	67	0
058-04C	B	66	Residential	1	71	71	0	72	72	0	1	73	73	0
058-05A	B	66	Residential	1	62	62	0	63	63	0	1	63	63	0
058-05B	B	66	Residential	1	65	65	0	66	66	0	1	67	67	0
058-05C	B	66	Residential	1	70	70	0	71	71	0	1	72	72	0
058-06A	B	66	Residential	1	63	63	0	64	64	0	1	63	63	0
058-06B	B	66	Residential	1	67	67	0	68	68	0	1	68	68	0
058-06C	B	66	Residential	1	71	71	0	71	71	0	1	73	73	0
058-07A	B	66	Residential	1	60	60	0	61	61	0	1	62	62	0
058-07B	B	66	Residential	1	63	63	0	64	64	0	1	65	65	0
058-07C	B	66	Residential	1	69	69	0	69	69	0	1	70	70	0
058-08A	B	66	Residential	1	57	57	0	58	58	0	1	59	59	0
058-08B	B	66	Residential	1	61	61	0	62	62	0	1	63	63	0
058-08C	B	66	Residential	1	69	69	0	69	69	0	1	71	71	0
058-09A	B	66	Residential	1	61	61	0	61	61	0	1	62	62	0
058-09B	B	66	Residential	1	63	63	0	63	63	0	1	63	63	0
058-09C	B	66	Residential	1	72	72	0	73	73	0	1	74	74	0
058-10A	B	66	Residential	1	70	70	0	71	71	0	1	71	71	0
058-10B	B	66	Residential	1	73	73	0	74	74	0	1	75	75	0
058-10C	B	66	Residential	1	74	74	0	74	74	0	1	76	76	0
058-11A	B	66	Residential	1	59	59	0	60	60	0	1	61	61	0
058-11B	B	66	Residential	1	62	62	0	63	63	0	1	64	64	0
058-11C	B	66	Residential	1	73	73	0	73	73	0	1	74	74	0
058-12A	B	66	Residential	1	71	71	0	72	72	0	1	72	72	0
058-12B	B	66	Residential	1	74	74	0	74	74	0	1	75	75	0
058-12C	B	66	Residential	1	74	74	0	74	74	0	1	76	76	0

Receptor Number	NAC	Noise Abatement Criteria (dBA)***	Land Use	No. of Dwelling / Recreational Units*	Predicted Noise Levels (dBA)									
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058-13A	B	66	Residential	1	64	64	0	65	65	0	1	64	64	0
058-13B	B	66	Residential	1	67	67	0	68	68	0	1	68	68	0
058-13C	B	66	Residential	1	73	73	0	73	73	0	1	74	74	0
058-14A	B	66	Residential	1	68	68	0	69	69	0	1	68	68	0
058-14B	B	66	Residential	1	72	72	0	73	73	0	1	74	74	0
058-14C	B	66	Residential	1	74	74	0	75	75	0	1	76	76	0
058-15A	B	66	Residential	1	64	64	0	64	64	0	1	66	66	0
058-15B	B	66	Residential	1	67	67	0	68	68	0	1	69	69	0
058-15C	B	66	Residential	1	73	73	0	74	74	0	1	74	74	0
058-16A	B	66	Residential	1	71	71	0	72	72	0	1	73	73	0
058-16B	B	66	Residential	1	74	74	0	75	75	0	1	76	76	0
058-16C	B	66	Residential	1	74	74	0	75	75	0	1	76	76	0
058-17A	B	66	Residential	1	64	64	0	65	65	0	1	66	66	0
058-17B	B	66	Residential	1	68	68	0	68	68	0	1	69	69	0
058-17C	B	66	Residential	1	73	73	0	74	74	0	1	75	75	0
058-18A	B	66	Residential	1	69	69	0	70	70	0	1	71	71	0
058-18B	B	66	Residential	1	72	72	0	73	73	0	1	74	74	0
058-18C	B	66	Residential	1	74	74	0	75	75	0	1	76	76	0
058-19A	B	66	Residential	1	57	57	0	58	58	0	1	59	59	0
058-19B	B	66	Residential	1	64	64	0	64	64	0	1	63	63	0
058-19C	B	66	Residential	1	73	73	0	74	74	0	1	75	75	0
058-20A	B	64	Residential	1	54	54	0	54	54	0	1	55	55	0
058-20B	B	66	Residential	1	75	75	0	75	75	0	1	76	76	0
058-20C	B	66	Residential	1	75	75	0	75	75	0	1	76	76	0
058-21A	B	66	Residential	1	61	61	0	62	62	0	1	62	62	0
058-21B	B	66	Residential	1	65	65	0	66	66	0	1	67	67	0
058-21C	B	66	Residential	1	68	68	0	69	69	0	1	70	70	0
058-22A	B	66	Residential	1	61	61	0	62	62	0	1	62	62	0
058-22B	B	66	Residential	1	66	66	0	66	66	0	1	67	67	0
058-22C	B	66	Residential	1	69	69	0	70	70	0	1	71	71	0
058-23A	B	66	Residential	1	61	61	0	61	61	0	1	62	62	0
058-23B	B	66	Residential	1	65	65	0	66	66	0	1	67	67	0
058-23C	B	66	Residential	1	68	68	0	69	69	0	1	69	69	0
058-24A	B	66	Residential	1	61	61	0	61	61	0	1	62	62	0
058-24B	B	66	Residential	1	65	65	0	65	65	0	1	67	67	0
058-24C	B	66	Residential	1	69	69	0	69	69	0	1	70	70	0



Receptor Number	NAC	Noise Abatement Criteria (dBA)***	Land Use	No. of Dwelling / Recreational Units*	Predicted Noise Levels (dBA)									
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058-25A	B	66	Residential	1	61	61	0	62	62	0	1	63	63	0
058-25B	B	66	Residential	1	66	66	0	67	67	0	1	68	68	0
058-25C	B	66	Residential	1	69	69	0	69	69	0	1	70	70	0
058-26A	B	66	Residential	1	62	62	0	62	62	0	1	64	64	0
058-26B	B	66	Residential	1	67	67	0	67	67	0	1	68	68	0
058-26C	B	66	Residential	1	69	69	0	69	69	0	1	70	70	0
058-27A	B	66	Residential	6	59	59	0	60	60	0	1	60	60	0
058-27B	B	66	Residential	6	63	63	0	63	63	0	1	64	64	0
058-27C	B	66	Residential	6	67	67	0	68	68	0	1	68	68	0
058-28A	B	65	Residential	4	55	55	0	55	55	0	1	56	56	0
058-28B	B	66	Residential	4	58	58	0	59	59	0	1	60	60	0
058-28C	B	66	Residential	4	66	66	0	66	66	0	1	67	67	0
058-29	C	66	Recreational - Apartment Pool	1	57	57	0	57	57	0	1	57	57	0
058-30	C	58	Medical Facility - Outdoor Area	1	48	48	0	48	48	0	1	48	48	0
058-31	D	76	Medical Facility (Exterior)	1	61	61	0	60	60	0	1	60	60	0
		51	Medical Facility (Interior)		(36)	(36)		(35)	(35)		1	(35)	(35)	
058-32	B	66	Residential	1	66	66	0	65	65	0	1			
CNE 59														
059-01	B	66	Residential	1	67	67	0	66	66	0	1			
059-02	B	66	Residential	1	67	67	0	67	67	0	1			
059-03	B	66	Residential	1	67	67	0	66	66	0	1			
059-04	B	66	Residential	1	66	66	0	65	65	0	1			
059-05	B	66	Residential	1	67	67	0	66	66	0	1	65	65	0
059-06	B	66	Residential	1	64	64	0	60	60	0	1	62	62	0
059-07	B	66	Residential	1	63	63	0	56	56	0	1	61	61	0
059-08	D	76	Medical Facility (Exterior)	1	62	62	0	56	56	0	1	62	62	0
		51	Medical Facility (Interior)		(37)	(37)		(31)	(31)		1	(37)	(37)	
059-09	D	76	Medical Facility (Exterior)	1	55	55	0	53	53	0	1	56	56	0
		51	Medical Facility (Interior)		(30)	(30)		(28)	(28)		1	(31)	(31)	
CNE 60														
060-01	B	66	Residential	1	61	61	0	61	61	0	1	62	62	0
060-02	B	66	Residential	1	67	67	0	67	67	0	1	68	68	0
060-03	B	66	Residential	1	69	69	0	69	69	0	1	70	70	0
060-04	B	66	Residential	1	61	61	0	61	61	0	1	61	61	0

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060-05	B	66	Residential	1	60	60	0	60	60	0	1	60	60	0
060-06	B	66	Residential	1	60	60	0	60	60	0	1	60	60	0
060-07	B	66	Residential	1	59	59	0	59	59	0	1	59	59	0
060-08	B	66	Residential	1	59	59	0	59	59	0	1	59	59	0
060-09	C	66	Recreational - School Recreational Areas	1	64	64	0	65	65	0	1	64	64	0
060-10	C	66	Recreational - School Recreational Areas	1	67	67	0	68	68	0	1	67	67	0
060-11	C	66	Recreational - School Recreational Areas	1	64	64	0	65	65	0	1	64	64	0
060-12	C	66	Recreational - School Recreational Areas	1	68	68	0	68	68	0	1	68	68	0
060-13	C	66	Recreational - School Recreational Areas	1	63	63	0	63	63	0	1	63	63	0
060-14	C	66	Recreational - School Recreational Areas	1	63	63	0	63	63	0	1	64	64	0
060-15	C	66	Recreational - School Recreational Areas	1	61	61	0	61	61	0	1	61	61	0
060-16	C	66	Recreational - School Recreational Areas	1	61	61	0	61	61	0	1	62	62	0
060-17	C	66	Recreational - School Recreational Areas	1	68	68	0	68	68	0	1	68	68	0
060-18	C	66	Recreational - School Recreational Areas	1	69	69	0	69	69	0	1	68	68	0
060-19	C	66	Recreational - School Recreational Areas	1	65	65	0	65	65	0	1	65	65	0
060-20	C	66	Recreational - School Recreational Areas	1	65	65	0	66	66	0	1	66	66	0
060-21	C	66	Recreational - School Recreational Areas	1	65	65	0	65	65	0	1	65	65	0
060-22	C	66	Recreational - School Recreational Areas	1	65	65	0	66	66	0	1	65	65	0
060-23	C	66	Recreational - School Recreational Areas	1	65	65	0	66	66	0	1	65	65	0
060-24	C	66	Recreational - School Recreational Areas	1	64	64	0	64	64	0	1	65	65	0
060-25	D	76	School (Exterior)	1	57	57	0	58	58	0	1	57	57	0

Receptor Number	NAC	Noise Abatement Criteria (dBA)***	Land Use	No. of Dwelling / Recreational Units*	Predicted Noise Levels (dBA)									
					Existing Condition (2014) with rail (dBA)	Existing Condition (2014) w/out rail (dBA)	Rail Noise Difference (dBA)**	No Build Alternative (2040) with rail (dBA)	No Build Alternative (2040) w/out rail (dBA)	Rail Noise Difference (dBA)**	Previous Alternative Equivalent	Preferred Alternative (2040) with rail (dBA)	Preferred Alternative (2040) w/out rail (dBA)	Preferred Alternative Rail Noise Difference (dBA)**
		(51)	School (Interior)		(30)	(30)		(28)	(28)		1	(31)	(31)	
CNE 61														
061-01	B	66	Residential	1	65	65	0	65	65	0	1	65	65	0
061-02	B	66	Residential	1	70	70	0	70	70	0	1	70	70	0
061-03	B	66	Residential	1	72	72	0	72	72	0	1	72	72	0
061-04	B	66	Residential	1	71	71	0	71	71	0	1	71	71	0
061-05	B	66	Residential	1	71	71	0	70	70	0	1	71	71	0
061-06	B	66	Residential	1	72	72	0	71	71	0	1	71	71	0
061-07	B	66	Residential	1	71	71	0	70	70	0	1	71	71	0
061-08	B	66	Residential	1	71	71	0	71	71	0	1	71	71	0
061-09	B	66	Residential	1	71	71	0	71	71	0	1	71	71	0
061-10	B	66	Residential	1	70	70	0	70	70	0	1	70	70	0
061-11	B	66	Residential	1	69	69	0	69	69	0	1	69	69	0
061-12	B	66	Residential	1	61	61	0	61	61	0	1	61	61	0
061-13	B	66	Residential	1	61	61	0	60	60	0	1	61	61	0
061-14	B	66	Residential	1	61	61	0	61	61	0	1	62	62	0
061-15	B	66	Residential	1	61	61	0	61	61	0	1	62	62	0
061-16	B	66	Residential	1	61	61	0	61	61	0	1	62	62	0
061-17	B	66	Residential	1	61	61	0	61	61	0	1	62	62	0
061-18	B	66	Residential	1	61	61	0	61	61	0	1	62	62	0
061-19	B	66	Residential	1	61	61	0	61	61	0	1	61	61	0
061-20	B	66	Residential	1	61	61	0	61	61	0	1	62	62	0
061-21	B	66	Residential	1	61	61	0	61	61	0	1	61	61	0
061-22	B	66	Residential	1	60	60	0	60	60	0	1	60	60	0
061-23	B	66	Residential	1	65	65	0	65	65	0	1	65	65	0
061-24	B	66	Residential	1	67	67	0	67	67	0	1	67	67	0
061-25	B	66	Residential	1	70	70	0	70	70	0	1	70	70	0
061-26	B	66	Residential	1	72	72	0	72	72	0	1	72	72	0
061-27	B	66	Residential	1	71	71	0	70	70	0	1	71	71	0
061-28	B	66	Residential	1	66	66	0	66	66	0	1	66	66	0
061-29	B	66	Residential	1	63	63	0	63	63	0	1	63	63	0
061-30	B	66	Residential	1	62	62	0	62	62	0	1	63	63	0
061-31	B	66	Residential	1	62	62	0	62	62	0	1	63	63	0
061-32	B	66	Residential	1	59	59	0	59	59	0	1	59	59	0
061-33	B	66	Residential	1	59	59	0	59	59	0	1	59	59	0
061-34	B	66	Residential	1	58	58	0	58	58	0	1	58	58	0

Receptor Number	NAC	Noise Abatement Criteria (dBA)***	Land Use	No. of Dwelling / Recreational Units*	Predicted Noise Levels (dBA)									
					Existing Condition (2014) with rail (dBA)	Existing Condition (2014) w/out rail (dBA)	Rail Noise Difference (dBA)**	No Build Alternative (2040) with rail (dBA)	No Build Alternative (2040) w/out rail (dBA)	Rail Noise Difference (dBA)**	Previous Alternative Equivalent	Preferred Alternative (2040) with rail (dBA)	Preferred Alternative (2040) w/out rail (dBA)	Preferred Alternative Rail Noise Difference (dBA)**
061-35	B	66	Residential	1	58	58	0	58	58	0	1	58	58	0
061-36	B	66	Residential	1	58	58	0	58	58	0	1	58	58	0
061-37	B	66	Residential	1	58	58	0	58	58	0	1	58	58	0
061-38	B	66	Residential	1	57	57	0	57	57	0	1	58	58	0
061-39	B	66	Residential	1	57	57	0	57	57	0	1	57	57	0
061-40	B	66	Residential	1	57	57	0	57	57	0	1	57	57	0
061-41	B	66	Residential	1	57	57	0	57	57	0	1	57	57	0
061-42	B	66	Residential	1	57	57	0	56	56	0	1	57	57	0
061-43	B	66	Residential	1	57	57	0	57	57	0	1	57	57	0
061-44	B	66	Residential	1	56	56	0	56	56	0	1	57	57	0
061-45	B	66	Residential	1	57	57	0	57	57	0	1	57	57	0
061-46	B	66	Residential	1	58	58	0	58	58	0	1	58	58	0
061-47	B	65	Residential	1	55	55	0	55	55	0	1	56	56	0
061-48	B	65	Residential	1	55	55	0	55	55	0	1	55	55	0
061-49	B	64	Residential	1	54	54	0	54	54	0	1	55	55	0
061-50	B	64	Residential	1	54	54	0	54	54	0	1	55	55	0
061-51	B	64	Residential	1	54	54	0	54	54	0	1	55	55	0
061-52	B	64	Residential	1	54	54	0	54	54	0	1	55	55	0
061-53	B	64	Residential	1	54	54	0	54	54	0	1	54	54	0
061-54	B	64	Residential	1	54	54	0	54	54	0	1	54	54	0
061-55	B	64	Residential	1	54	54	0	54	54	0	1	54	54	0
061-56	B	65	Residential	1	55	55	0	55	55	0	1	55	55	0
061-57	B	65	Residential	1	55	55	0	55	55	0	1	56	56	0
CNE 62														
062-01	C	66	Recreational - Church Recreational Areas	1	64	64	0	64	64	0	1	64	64	0
062-02	C	66	Recreational - Church Recreational Areas	1	63	63	0	63	63	0	1	63	63	0
062-03	C	66	Recreational - Church Recreational Areas	1	66	66	0	66	66	0	1	66	66	0
062-04	C	66	Recreational - Church Recreational Areas	1	64	64	0	64	64	0	1	64	64	0
062-05	D	76	Church (Exterior)	1	62	62	0	62	62	0	1	61	61	0
		(51)	Church (Interior)		(37)	(37)		(37)	(37)		1	(36)	(36)	
CNE 100														
100-01	B	50	Residential	1	40	39	1	42	41	1	2N	59	59	0

Receptor Number	NAC	Noise Abatement Criteria (dBA)***	Land Use	No. of Dwelling / Recreational Units*	Predicted Noise Levels (dBA)									
					Existing Condition (2014) with rail (dBA)	Existing Condition (2014) w/out rail (dBA)	Rail Noise Difference (dBA)**	No Build Alternative (2040) with rail (dBA)	No Build Alternative (2040) w/out rail (dBA)	Rail Noise Difference (dBA)**	Previous Alternative Equivalent	Preferred Alternative (2040) with rail (dBA)	Preferred Alternative (2040) w/out rail (dBA)	Preferred Alternative Rail Noise Difference (dBA)**
100-02	B	52	Residential	1	42	41	0	43	42	0	2N	61	61	0
CNE 101														
101-01	B	63	Residential	1	53	53	0	54	53	0	3	58	58	0
101-02	B	66	Residential	1	65	65	0	65	65	0	3			
101-03	B	66	Residential	1	65	65	0	65	65	0	3			
101-04	B	66	Residential	1	63	63	0	63	63	0	3	63	63	0
101-05	B	66	Residential	1	64	64	0	64	64	0	3	63	63	0
101-06	B	66	Residential	1	64	64	0	64	64	0	3	63	63	0
101-07	B	66	Residential	1	56	56	0	56	56	0	3	60	60	0
101-08	B	66	Residential	1	56	56	0	56	56	0	3	60	60	0
101-09	B	66	Residential	1	61	61	0	61	61	0	3			
101-10	B	66	Residential	1	61	61	0	61	61	0	3	64	64	0
101-11	B	66	Residential	1	63	63	0	63	63	0	3			
101-12	B	66	Residential	1	58	58	0	58	58	0	3	63	63	0
101-13	B	66	Residential	1	61	61	0	61	61	0	3	65	65	0
CNE 102														
102-01	B	51	Residential	1	41	40	1	42	42	0	3	60	60	0
102-02	B	51	Residential	1	41	40	1	42	41	0	3	60	60	0
102-03	B	51	Residential	1	41	40	1	42	41	0	3	59	59	0
102-04	B	51	Residential	1	41	40	1	42	41	0	3	58	58	0
102-05	B	50	Residential	1	40	40	1	41	41	0	3	59	59	0
102-06	B	50	Residential	1	40	39	1	41	41	1	3	60	60	0
102-07	B	50	Residential	1	40	39	1	41	41	1	3	61	61	0
102-08	B	50	Residential	1	40	39	1	41	41	1	3	62	62	0
102-09	B	50	Residential	1	40	39	1	41	40	1	3	63	63	0
102-10	B	50	Residential	1	40	39	1	41	40	1	3	63	63	0
102-11	B	49	Residential	1	39	39	1	41	40	1	3	63	63	0
102-12	B	50	Residential	1	40	39	1	41	40	1	3	63	63	0
102-13	B	50	Residential	1	40	39	1	41	40	1	3	62	62	0
102-14	B	50	Residential	1	40	39	1	41	40	1	3	62	62	0
102-15	B	50	Residential	1	40	39	1	41	40	1	3	62	62	0
102-16	B	50	Residential	1	40	39	1	41	40	1	3	61	61	0
102-17	B	50	Residential	1	40	39	1	41	40	1	3	61	61	0
102-18	B	50	Residential	1	40	39	1	41	40	1	3	61	61	0
102-19	B	50	Residential	1	40	39	1	41	40	1	3	60	60	0
102-20	B	50	Residential	1	40	39	1	41	40	1	3	62	62	0

Receptor Number	NAC	Noise Abatement Criteria (dBA)***	Land Use	No. of Dwelling / Recreational Units*	Predicted Noise Levels (dBA)									
					Existing Condition (2014) with rail (dBA)	Existing Condition (2014) w/out rail (dBA)	Rail Noise Difference (dBA)**	No Build Alternative (2040) with rail (dBA)	No Build Alternative (2040) w/out rail (dBA)	Rail Noise Difference (dBA)**	Previous Alternative Equivalent	Preferred Alternative (2040) with rail (dBA)	Preferred Alternative (2040) w/out rail (dBA)	Preferred Alternative Rail Noise Difference (dBA)**
102-21	B	50	Residential	1	40	39	1	41	41	1	3	60	60	0
CNE 103														
103-01	B	48	Residential	1	38	38	1	40	39	1	3	63	63	0
CNE 104														
104-01	B	51	Residential	1	41	40	1	43	42	1	3	55	55	0
104-02	B	50	Residential	1	40	39	1	42	41	1	3			
104-03	B	50	Residential	1	40	39	1	42	41	1	3			
104-04	B	50	Residential	1	40	39	1	42	41	1	3			
104-05	D	76	Church (Exterior)	1	40	39	1	41	41	1	3			
		(51)	Church (Interior)		(15)	(14)		(16)	(16)		3			
104-06	B	50	Residential	1	40	39	1	41	41	1	3			
104-07	B	50	Residential	1	40	39	1	41	41	1	3			
104-08	B	49	Residential	1	39	39	1	41	40	1	3	63	63	0
CNE 105														
105-01	B	51	Residential	1	41	41	1	43	43	0	3	58	58	0
105-02	B	52	Residential	1	42	41	1	43	43	0	3			
105-03	B	51	Residential	1	41	41	1	43	43	0	3			
105-04	B	51	Residential	1	41	41	1	43	43	0	3			
105-05	B	51	Residential	1	41	40	1	43	42	0	3			
105-06	B	51	Residential	1	41	41	1	43	43	0	3	64	64	0
105-07	B	51	Residential	1	41	41	1	43	43	0	3	61	61	0
105-08	B	51	Residential	1	41	41	1	43	43	0	3	60	60	0
105-09	B	51	Residential	1	41	41	1	43	43	0	3	63	63	0
105-10	B	51	Residential	1	41	40	1	43	42	0	3	66	66	0
105-11	B	51	Residential	1	41	40	1	42	42	0	3			
105-12	B	50	Residential	1	40	39	1	42	41	0	3			
105-13	B	50	Residential	1	40	39	1	41	41	0	3	55	55	0
105-14	B	50	Residential	1	40	39	1	41	41	0	3	53	53	0
105-15	B	50	Residential	1	40	39	1	41	41	0	3	54	54	0
105-16	B	50	Residential	1	40	39	1	41	41	0	3			
105-17	B	50	Residential	1	40	39	1	41	41	0	3			
105-18	B	50	Residential	1	40	39	1	41	41	0	3	56	56	0
105-19	B	50	Residential	1	40	39	1	41	41	0	3	57	57	0
105-20	B	50	Residential	1	40	39	1	41	41	0	3	59	59	0
105-21	B	50	Residential	1	40	39	1	41	41	0	3	59	59	0
105-22	B	50	Residential	1	40	39	1	42	41	0	3	67	67	0



Receptor Number	NAC	Noise Abatement Criteria (dBA)***	Land Use	No. of Dwelling / Recreational Units*	Predicted Noise Levels (dBA)									
					Existing Condition (2014) with rail (dBA)	Existing Condition (2014) w/out rail (dBA)	Rail Noise Difference (dBA)**	No Build Alternative (2040) with rail (dBA)	No Build Alternative (2040) w/out rail (dBA)	Rail Noise Difference (dBA)**	Previous Alternative Equivalent	Preferred Alternative (2040) with rail (dBA)	Preferred Alternative (2040) w/out rail (dBA)	Preferred Alternative Rail Noise Difference (dBA)**
CNE 106														
106-01	B	51	Residential	1	41	41	0	43	43	0	3	65	65	
CNE 107														
107-01	B	66	Residential	1	64	64	0	66	66	0	3	62	62	0
107-02	B	66	Residential	1	62	62	0	64	64	0	3	61	61	0
107-03	B	66	Residential	1	72	72	0	74	74	0	3			
107-04	B	66	Residential	1	68	68	0	70	70	0	3	64	64	0
107-05	B	66	Residential	1	70	70	0	72	72	0	3			
107-06	B	66	Residential	1	66	66	0	68	68	0	3	64	64	0
107-07	B	66	Residential	1	57	57	0	58	58	0	3	59	59	0
107-08	B	65	Residential	1	55	55	0	57	57	0	3	62	62	0
107-09	B	66	Residential	1	56	56	0	58	58	0	3	59	59	0
107-10	B	66	Residential	1	57	57	0	58	58	0	3	59	59	0
107-11	B	66	Residential	1	56	56	0	58	58	0	3	60	60	0
107-12	B	66	Residential	1	56	56	0	57	57	0	3			
107-13	B	62	Residential	1	52	52	0	54	54	0	3			
107-14	B	63	Residential	1	53	53	0	55	55	0	3			
107-15	B	63	Residential	1	53	53	0	55	55	0	3	62	62	0
107-16	C	59	Cemetery	1	49	49	0	51	51	0	3	69	69	0
107-17	B	57	Residential	1	47	47	0	49	49	0	3			
CNE 108														
108-01	B	51	Residential	1	41	41	0	43	43	0	3	55	55	0
108-02	B	53	Residential	1	43	43	0	45	45	0	3	65	65	0
108-03	B	53	Residential	1	43	43	0	45	45	0	3	60	60	0
108-04	B	55	Residential	1	45	45	0	46	46	0	3	54	54	0
108-05	B	55	Residential	1	45	45	0	46	46	0	3	54	54	0
108-06	B	54	Residential	1	44	44	0	46	46	0	3	55	55	0
108-07	B	55	Residential	1	45	45	0	47	47	0	3	54	54	0
108-08	B	54	Residential	1	44	44	0	46	46	0	3	56	56	0
108-09	B	53	Residential	1	43	43	0	45	45	0	3			
108-10	B	53	Residential	1	43	43	0	45	45	0	3			
108-11	B	53	Residential	1	43	43	0	45	45	0	3			
108-12	B	53	Residential	1	43	43	0	44	44	0	3			
108-13	B	52	Residential	1	42	42	0	44	44	0	3			
108-14	B	52	Residential	1	42	42	0	44	44	0	3			
108-15	B	52	Residential	1	42	42	0	44	44	0	3	69	69	0

Receptor Number	NAC	Noise Abatement Criteria (dBA)***	Land Use	No. of Dwelling / Recreational Units*	Predicted Noise Levels (dBA)									
					Existing Condition (2014) with rail (dBA)	Existing Condition (2014) w/out rail (dBA)	Rail Noise Difference (dBA)**	No Build Alternative (2040) with rail (dBA)	No Build Alternative (2040) w/out rail (dBA)	Rail Noise Difference (dBA)**	Previous Alternative Equivalent	Preferred Alternative (2040) with rail (dBA)	Preferred Alternative (2040) w/out rail (dBA)	Preferred Alternative Rail Noise Difference (dBA)**
108-16	B	52	Residential	1	42	42	0	44	44	0	3	65	65	0
108-17	B	52	Residential	1	42	42	0	44	44	0	3	64	64	0
108-18	B	53	Residential	1	43	43	0	44	44	0	3			
108-19	B	53	Residential	1	43	43	0	45	45	0	3			
CNE 158														
158-01	B	66	Residential	1	62	62	0	64	64	0	4	68	68	0
158-02	B	66	Residential	1	56	56	0	59	59	0	4	63	63	0
158-03	B	60	Residential	1	50	50	0	53	53	0	4	55	55	0
158-04	B	66	Residential	1	57	57	0	60	60	0	4	64	64	0
158-05	B	66	Residential	1	60	60	0	63	63	0	4	66	66	0
158-06	B	66	Residential	1	60	60	0	62	62	0	4	66	66	0
158-07	B	64	Residential	1	54	54	0	57	57	0	4	60	60	0
158-08	B	64	Residential	1	54	53	0	56	56	0	4	59	59	0
158-09	B	61	Residential	1	51	51	0	54	54	0	4	56	56	0
CNE 159														
159-01	B	66	Residential	1	71	71	0	74	74	0	4			
159-02	B	66	Residential	1	71	71	0	73	73	0	4			
159-03	C	66	Cemetery	1	64	56	8	64	58	6	4	65	59	5
159-04	B	66	Residential	1	74	74	0	77	77	0	4			
CNE 160														
160-01	B	66	Residential	1	67	67	0	70	69	0	4	73	73	0
160-02	B	63	Residential	1	53	53	0	56	55	0	4	58	58	0
160-03	B	66	Residential	1	69	56	13	69	59	10	4	69	59	10
160-04	B	66	Residential	1	66	56	10	66	58	8	4	66	59	8
160-05	B	66	Residential	1	72	57	15	72	60	12	4	72	60	12
160-06	B	66	Residential	1	65	55	10	65	58	8	4	66	59	7
160-07	B	66	Residential	1	71	71	1	74	74	0	4	72	71	1
160-08	B	66	Residential	1	70	70	1	73	72	0	4	71	70	1
160-09	B	66	Residential	1	69	68	1	71	70	1	4	70	69	1
160-10	B	66	Residential	1	71	70	0	73	73	0	4	71	71	0
160-11	B	66	Residential	1	60	60	0	63	63	0	4	66	65	0
160-12	B	66	Residential	1	58	58	0	60	60	0	4	62	62	0
160-13	B	65	Residential	1	55	55	0	57	57	0	4	59	59	0
160-14	B	64	Residential	1	54	54	0	57	56	0	4	59	58	0
160-15	B	61	Residential	1	51	51	0	54	53	0	4	55	55	0
160-16	B	66	Residential	1	67	67	0	69	69	0	4			

Receptor Number	NAC	Noise Abatement Criteria (dBA)***	Land Use	No. of Dwelling / Recreational Units*	Predicted Noise Levels (dBA)									
					Existing Condition (2014) with rail (dBA)	Existing Condition (2014) w/out rail (dBA)	Rail Noise Difference (dBA)**	No Build Alternative (2040) with rail (dBA)	No Build Alternative (2040) w/out rail (dBA)	Rail Noise Difference (dBA)**	Previous Alternative Equivalent	Preferred Alternative (2040) with rail (dBA)	Preferred Alternative (2040) w/out rail (dBA)	Preferred Alternative Rail Noise Difference (dBA)**
160-17	B	66	Residential	1	66	66	0	69	69	0	4	71	71	0
160-18	B	66	Residential	1	68	68	0	70	70	0	4	73	73	0
160-19	B	66	Residential	1	68	68	0	70	70	0	4	72	72	0
160-20	B	66	Residential	1	67	67	0	70	70	0	4	72	72	0
160-21	B	66	Residential	1	69	69	0	72	72	0	4			
160-22	B	66	Residential	1	70	70	0	73	73	0	4			
CNE 161														
161-01	D	76	Church (Exterior)	1	50	47	3	52	50	2	2N	52	51	2
		(51)	Church (Interior)		(25)	(22)		(27)	(25)		2N	(27)	(26)	
161-02	C	63	Cemetery	1	53	49	4	54	52	2	2N	54	52	2
161-03	C	59	Cemetery	1	49	47	3	51	49	2	2N	52	51	1
161-04	C	60	Cemetery	1	50	47	3	51	50	2	2N	52	51	1
161-05	C	60	Cemetery	1	50	47	3	52	50	2	2N	53	51	2
161-06	C	59	Cemetery	1	49	46	3	50	49	2	2N	52	50	1
161-07	C	59	Cemetery	1	49	46	3	51	49	2	2N	52	51	1
161-08	C	60	Cemetery	1	50	47	3	51	49	2	2N	52	51	1
161-09	C	58	Cemetery	1	48	46	3	50	48	2	2N	51	50	1
161-10	C	59	Cemetery	1	49	46	3	50	49	2	2N	51	50	1
161-11	C	59	Cemetery	1	49	46	3	51	49	2	2N	52	50	1
161-12	B	66	Residential	1	59	53	6	60	56	4	2N	60	57	4
161-13	B	66	Residential	1	63	55	9	64	57	6	2N	64	58	6
161-14	B	66	Residential	1	68	56	12	68	59	9	2N	68	58	10
161-15	B	66	Residential	1	67	56	11	67	58	9	2N	67	56	11
161-16	B	66	Residential	1	67	67	0	70	69	0	2N			
161-17	B	66	Residential	1	63	62	0	65	65	0	2N	62	61	0
161-18	B	66	Residential	1	60	59	1	62	62	0	2N	62	62	0
161-19	B	65	Residential	1	55	54	1	57	57	0	2N	63	63	0
161-20	B	61	Residential	1	51	50	1	53	53	1	2N	64	64	0
161-21	B	59	Residential	1	49	48	1	51	50	1	2N			
161-22	B	57	Residential	1	47	46	1	49	49	1	2N			
CNE 165														
165-01	B	54	Residential	1	44	43	1	46	45	1	2N	60	60	0
165-02	B	54	Residential	1	44	42	1	46	45	1	2N	59	59	0
165-03	B	53	Residential	1	43	42	1	45	45	1	2N	63	63	0
165-04	B	51	Residential	1	41	41	1	43	43	1	2N	64	64	0
165-05	B	51	Residential	1	41	41	1	43	43	1	2N	62	62	0

Receptor Number	NAC	Noise Abatement Criteria (dBA)***	Land Use	No. of Dwelling / Recreational Units*	Predicted Noise Levels (dBA)												
					Existing Condition (2014) with rail (dBA)	Existing Condition (2014) w/out rail (dBA)	Rail Noise Difference (dBA)**	No Build Alternative (2040) with rail (dBA)	No Build Alternative (2040) w/out rail (dBA)	Rail Noise Difference (dBA)**	Previous Alternative Equivalent	Preferred Alternative (2040) with rail (dBA)	Preferred Alternative (2040) w/out rail (dBA)	Preferred Alternative Rail Noise Difference (dBA)**			
CNE 229																	
229-01	B	66	Residential	1	71	71	0	73	73	0	4	76	76	0			
CNE 230																	
230-01	B	66	Residential	1	61	60	1	63	63	1	4	66	65	0			
230-02	B	66	Residential	1	67	67	0	69	69	0	4	70	70	0			
230-03	B	66	Residential	1			70			70	0				4		
230-04	B	66	Residential	1			69			69	0				72	72	0
230-05	B	66	Residential	1	61	61	0	64	64	0	4	66	66	0			
230-06	B	66	Residential	1	61	60	0	63	63	0	4	65	65	0			
230-07	B	66	Residential	1	62	62	0	65	65	0	4	67	67	0			
230-08	B	66	Residential	1	62	62	0	65	65	0	4	66	66	0			
230-09	B	66	Residential	1	62	62	0	65	65	0	4			67	67	0	
230-10	B	66	Residential	1	63	63	0	65	65	0	4			67	67	0	
230-11	B	66	Residential	1	62	62	0	65	65	0	4	66	66	0			
230-12	B	66	Residential	1	62	62	0	65	65	0	4	67	67	0			
230-13	B	66	Residential	1	63	63	0	66	66	0	4	68	68	0			
230-14	B	66	Residential	1	64	64	0	67	67	0	4	69	69	0			
230-15	B	66	Residential	1	57	56	1	59	59	0	4	62	62	0			
230-16	D	76	Church (Exterior)	1	57	57	0	60	60	0	4	62	62	0			
		(51)	Church (Interior)		(32)	(32)		(35)	(35)		4	(37)	(37)				
230-17	B	66	Residential	1	57	57	0	60	60	0	4	62	62	0			
230-18	B	66	Residential	1	57	57	0	60	60	0	4	62	62	0			
230-19	B	66	Residential	1	57	57	0	60	60	0	4	63	63	0			
230-20	B	66	Residential	1	57	57	0	60	60	0	4	63	63	0			
230-21	B	66	Residential	1	57	57	0	60	60	0	4	63	63	0			
230-22	B	66	Residential	1	58	58	0	61	61	0	4	64	64	0			
CNE 231																	
231-01	D	76	Church (Exterior)	1	67	67	0	70	70	0	4	73	73	0			
		(51)	Church (Interior)		(42)	(42)		(45)	(45)		4	(48)	(48)				
231-02	B	66	Residential	1	72	71	0	74	74	0	4						
231-03	B	66	Residential	1	71	71	0	74	74	0	4						
231-04	B	66	Residential	1	71	71	0	74	74	0	4						
231-05	B	66	Residential	1	70	70	0	73	73	0	4	76	76	0			
231-06	B	66	Residential	1	70	70	0	73	73	0	4						
231-07	B	66	Residential	1	68	68	0	71	71	0	4	73	73	0			
231-08	B	66	Residential	1	56	56	0	59	59	0	4	62	62	0			

Receptor Number	NAC	Noise Abatement Criteria (dBA)***	Land Use	No. of Dwelling / Recreational Units*	Predicted Noise Levels (dBA)									
					Existing Condition (2014) with rail (dBA)	Existing Condition (2014) w/out rail (dBA)	Rail Noise Difference (dBA)**	No Build Alternative (2040) with rail (dBA)	No Build Alternative (2040) w/out rail (dBA)	Rail Noise Difference (dBA)**	Previous Alternative Equivalent	Preferred Alternative (2040) with rail (dBA)	Preferred Alternative (2040) w/out rail (dBA)	Preferred Alternative Rail Noise Difference (dBA)**
231-09	B	66	Residential	1	59	58	0	61	61	0	4	64	64	0
231-10	B	66	Residential	1	62	62	0	65	65	0	4	67	67	0
231-11	B	66	Residential	1	64	64	0	67	67	0	4	70	70	0
Total Impacts					117 (125)	112 (120)		126 (134)	121 (129)			302 (310)	295 (303)	
Minimum (dBA)					15	14		16	16			27	26	
Maximum (dBA)					75	75		77	77			77	77	
(##)	Represents Interior Noise Levels													
*	Dwelling Units may refer to residential and/or recreational units													
**	Differences due to rail noise may not match due to rounding													
***	Criteria based on NAC or substantial increase, whichever is lower													
	Indicates noise impact (NAC Only)													
	Indicates noise impact (Substantial Increase Only)													
	Indicates noise impact (NAC and Substantial Increase)													
	Property was considered to be potentially acquired during the Draft SEIS noise analysis but is not currently considered potentially acquired. Noise impact is assumed and will be reevaluated during Final Design													
	Property is considered to be potentially acquired or displaced by the Preferred Alternative or was considered to be potentially acquired during the Draft SEIS noise analysis.													

### E.3 PREFERRED ALTERNATIVE NOISE BARRIER SUMMARY

A total of 19 noise barriers were evaluated for areas predicted to be impacted by traffic noise under the future design year build condition for the Preferred Alternative. A barrier unit cost of \$31 per square feet was used to calculate the noise barrier's cost. The \$31 per square foot unit cost was used because it is the current state wide barrier unit cost for barrier quantities greater than 50,000 square foot. This cost is based on two years of historic data and is updated accordingly about every other year. **Table E-3** and the narratives describe:

- Barrier identification;
- CNE location;
- Range of predicted noise reduction (insertion loss);
- Length, height, and surface area;
- Estimated costs;
- Number of dwelling units and/or recreational receptor unit; and
- Area per benefited receptor (SF/BR).

As long as seven decibels of noise reduction can be achieved by a barrier at one impacted receptor, the SF/BR is the primary determining factor in whether barriers would be reasonable (cost-effective). If a barrier could not be developed that is both feasible and reasonable, then the best attempt at developing a reasonable barrier is shown in the table, and the resulting SF/BR value given.

The barrier analysis for the SEIS examined barrier heights in 2 foot increments. This process does not allow for fine-tuning of the SF/BR value with a variety of barrier heights, which would be carried out in a final design noise analysis. As a result, this analysis gives preliminary information on the potential cost-effectiveness of barriers for each CNE, but it is not the final determination on the reasonableness of any of the noise barriers evaluated. All noise-sensitive areas adjacent to the study corridor would be re-evaluated for noise abatement in a much more detailed manner during the design phase when more detailed traffic is developed and survey information is available. The barrier analysis was largely conducted separately for each CNE, unless it was determined that considering receptors in adjacent CNEs would increase the likelihood of a barrier being reasonable.

Several CNE's contain impacted receptors that have frontage with the roadway. Due to the need to maintain access, it was not feasible to evaluate a noise barrier for the following impacted receptors: 053-02, 104-07, 104-08, 158-05, 158-06, 160-01, 160-07 to 160-10, 160-17 to 160-20, 165-04, 165-05, 229-01, 230-01, 230-02, 230-04, 230-05, 230-07 to 230-14, 231-05, 231-07, 231-10, and 231-11.

VDOT's Single Impacted Receptor Methodology was utilized to assist in evaluating the impacted single receptors within the project area. Utilizing this methodology for site 214-03 from the Draft SEIS, feasible reductions and the 7 dB(A) design goal are possible at heights of 14 feet and a length of 384 feet; however the Max/SF/Benefit value is 5,378, which far exceeds the allowable value of 1,600. The results can be expected to be similar at the following impacted sites using the same methodology: 100-01, 100-02, 103-01, 104-01, and 106-01. Accordingly, these sites were not evaluated further for noise abatement as part of this preliminary noise analysis.

Sites 160-03 to 160-06 are immediately adjacent to the rail line; as a result the dominant noise source for these sites is the rail noise. As indicated in **Table E-2**, the sites are not impacted when the rail noise is



excluded; the predicted noise levels without the rail is at least 7 dB(A) lower than the total noise levels with the rail. It follows that the impacts for these sites are being caused by the rail traffic. Since the railroad is located between the Preferred Alternative and these receptors, a feasible and reasonable noise barrier cannot be incorporated into the project that would provide protection for the impacted receptors. The noise barrier that was considered and is shown in **Figure E-1** and **Table E-4** would only provide an insertion loss of 1 dB(A) at two of the four impacted receptors.

Sites 161-14 and 161-15 have a similar relationship to the roadway as sites 160-03 to 160-06 where the sites are immediately adjacent to the rail line, and the dominant noise source for these sites is the rail noise. As indicated in **Table E-2**, the sites are not impacted when the rail noise is excluded; the predicted noise levels without the rail is at least 10 dB(A) lower than the total noise levels with the rail. It follows that the impacts for these sites are being caused by the rail traffic. Since the railroad is located between the Preferred Alternative and these receptors, a noise barrier cannot be incorporated into the project that would provide protection for the impacted receptors. Since a reasonable and feasible noise barrier couldn't be developed for sites 160-03 to 160-06, which are located closer to the mainline of the Preferred Alternative than sites 161-14 to 161-15, it is reasonable to conclude that any barrier developed for sites 161-14 to 161-15 would yield a similar result.

Of the 19 noise barriers evaluated, five barriers were found to be both feasible and reasonable in accordance with VDOT's State Noise Abatement Policy under the Preferred Alternative. The barrier locations are shown on **Figure E-1** at the end of this appendix. The barrier locations shown are based on preliminary information for the Preferred Alternative, which is a combination of previously evaluated alternatives. Minor adjustments to the barrier locations are shown to accommodate the combination of alternatives. The barrier locations would be evaluated in final design in much more detail as the design is further refined. A summary of the evaluated barriers is shown in **Table E-3**. Details of the insertion losses are listed in **Table E-4**. Warranted, Feasible, and Reasonable (WFR) worksheets are included in the **Appendix L** of the of the Draft SEIS *Noise Analysis Technical Report* (VDOT 2014j).

Following are descriptions of the barriers evaluated for the Preferred Alternative. For additional information on these barriers refer to the *Noise Analysis Technical Report* (VDOT 2014j).

#### **Barrier 4-02**

Barrier 4-02 is located within CNE 158, and extends along the Route 460 westbound lanes. Barrier 4-02 has a total length of 971 feet. The barrier has a uniform height of 14 feet, resulting in a total surface area of 13,569 square feet. The barrier would benefit one impacted site (158-01), representing one residence; the barrier does not benefit any additional non-impacted sites. This would result in a ratio of 13,569 square feet per benefited receptor. The barrier provides 3-8 dB(A) of noise reduction. The barrier meets the design goal of 7 dB(A) as it provides noise reduction of at least 7 dB(A) to at least one impacted site. *The barrier is considered feasible but not reasonable in accordance with VDOT's State Noise Abatement Policy.*

#### **Barrier 4-03**

Barrier 4-03 is located within CNE 160, and extends along the Route 460 westbound lanes. South of Barrier 4-03 is a rail line that runs parallel to Route 460. The barrier is located between Route 460 and the rail line. Barrier 4-03 has a total length of 2,107 feet. The barrier has a uniform height of 30 feet, resulting in a total surface area of 63,210 square feet. The barrier does not benefit any sites. The barrier provides 1 dB(A) of noise reduction at two of the four sites; consequently, it does not meet the 7 dB(A) design goal. The low

noise reduction is mainly due to the fact that the dominant noise source (rail) can't be abated by the project. ***The barrier is not considered feasible or reasonable in accordance with VDOT's State Noise Abatement Policy.***

#### **Barrier 4-04**

Barrier 4-04 is located within CNE 160, and extends from Winston Drive to the Route 460 westbound lanes. Barrier 4-04 has a total length of 1,251 feet. The barrier has a uniform height of 14 feet, resulting in a total surface area of 17,514 square feet. The barrier would benefit one impacted site (160-11), representing one residence; the barrier does not benefit any additional non-impacted sites. This results in a surface area ratio of 17,514 square feet per benefited receptor. The barrier provides 3-6 dB(A) of noise reduction. The barrier does not meet the design goal of 7 dB(A). ***The barrier is considered feasible but not reasonable in accordance with VDOT's State Noise Abatement Policy.***

#### **Barrier 2N-24**

Barrier 2N-24 is located within CNE 161, and extends along the Route 460 eastbound lanes. Barrier 2N-24 has a total length of 1,945 feet. The barrier has a uniform height of 22 feet, resulting in a total surface area of 42,790 square feet. The barrier would benefit one impacted site (161-20), representing one residence; the barrier would benefit an additional one non-impacted site (161-19). This would result in a surface area ratio of 21,395 square feet per benefited receptor. The barrier provides 2-7 dB(A) of noise reduction. The barrier meets the design goal of 7 dB(A) as it provides noise reduction of at least 7 dB(A) to at least one impacted site. ***The barrier is considered feasible and not reasonable in accordance with VDOT's State Noise Abatement Policy.***

#### **Barrier 2N-25**

Barrier 2N-25 is located within CNE 165, and extends along the Route 460 westbound lanes. Barrier 2N-25 has a total length of 1,963 feet. The barrier has a uniform height of 22 feet, resulting in a total surface area of 43,186 square feet. The barrier would benefit three impacted sites (165-01 to 165-03), representing three residences; the barrier does not benefit any additional non-impacted sites. This would result in a surface area ratio of 14,395 square feet per benefited receptor. The barrier provides 5-7 dB(A) of noise reduction. The barrier meets the design goal of 7 dB(A) as it provides noise reduction of at least 7 dB(A) to at least one impacted site. ***The barrier is considered feasible but not reasonable in accordance with VDOT's State Noise Abatement Policy.***

#### **Barrier 3-37**

Barrier 3-37 is located within CNE 102, and extends along the proposed Route 460 eastbound lanes. Barrier 3-37 has a total length of 5,025 feet. The barrier has a uniform height of 18 feet, resulting in a total surface area of 90,450 square feet. The barrier would benefit 20 impacted sites (102-01 to 102-03 and 102-05 to 102-21), representing 20 residences; the barrier does not benefit any additional non-impacted sites. This would result in a surface area ratio of 4,523 square feet per benefited receptor. The barrier provides 4-7 dB(A) of noise reduction. The barrier meets the design goal of 7 dB(A) as it provides noise reduction of at least 7 dB(A) to at least one impacted site. ***The barrier is considered feasible but not reasonable in accordance with VDOT's State Noise Abatement Policy.***

**Barrier 3-38**

Barrier 3-38 is located within CNE 105, and extends along the proposed Route 460 eastbound lanes. Barrier 3-38 has a total length of 3,394 feet. The barrier has a uniform height of 18 feet, resulting in a total surface area of 61,092 square feet. The barrier provides 3-4 dB(A) of noise reduction, but does not meet the design goal of 7 dB(A). *The barrier is considered neither feasible nor reasonable in accordance with VDOT's State Noise Abatement Policy.*

**Barrier 3-39**

Barrier 3-39 is located within CNE 105, and extends along the proposed Route 460 westbound lanes. Barrier 3-39 has a total length of 4,295 feet. The barrier has a uniform height of 30 feet, resulting in a total surface area of 128,850 square feet. The barrier would benefit three impacted sites (105-20 to 105-22), representing three residences; the barrier does not benefit any additional non-impacted sites. This would result in a surface area ratio of 42,950 square feet per benefited receptor. The barrier provides 4-8 dB(A) of noise reduction). The barrier meets the design goal of 7 dB(A) as it provides noise reduction of at least 7 dB(A) to at least one impacted site, but it does not provide at least 5 dB(A) attenuation to at least 50 percent of the impacted sites. *The barrier is considered neither feasible (benefits less than 50% impacts) nor reasonable in accordance with VDOT's State Noise Abatement Policy.*

**Barrier 3-40**

Barrier 3-40 is located within CNE 107, and extends along the proposed Route 460 eastbound lanes. Part of the barrier is also on the Route 460 ramps. Barrier 3-40 has a total length of 1,363 feet. The barrier has a uniform height of 14 feet, resulting in a total surface area of 19,082 square feet. The barrier would benefit one impacted site (107-16), representing one residence; the barrier does not benefit any additional non-impacted sites. This would result in a surface area ratio of 19,082 square feet per benefited receptor. The barrier provides 4-7 dB(A) of noise reduction. The barrier meets the design goal of 7 dB(A) as it provides noise reduction of at least 7 dB(A) to at least one impacted site. *The barrier is considered feasible but not reasonable in accordance with VDOT's State Noise Abatement Policy.*

**Barrier 3-42**

Barrier 3-42 is located within CNEs 047 and 108, and extends along the proposed Route 460 eastbound lanes. Barrier 3-42 has a total length of 3,384 feet. The barrier has a uniform height of 18 feet, resulting in a total surface area of 60,912 square feet. The barrier would benefit four impacted sites (047-01, 047-02, 108-15 and 108-17), representing three residences; the barrier does not benefit any additional non-impacted sites. This would result in a surface area ratio of 15,228 square feet per benefited receptor. The barrier provides 2-11 dB(A) of noise reduction. The barrier meets the design goal of 7 dB(A) as it provides noise reduction of at least 7 dB(A) to at least one impacted site. *The barrier is considered feasible but not reasonable in accordance with VDOT's State Noise Abatement Policy.*

**Barrier 3-43**

Barrier 3-43 is located within CNE 108, and extends along the proposed Route 460 westbound lanes. Barrier 3-43 has a total length of 5,892 feet. The barrier has a uniform height of 18 feet, resulting in a total surface area of 106,056 square feet. The barrier provides 3-4 dB(A) of noise reduction, but does not meet

the design goal of 7 dB(A). *The barrier is considered neither feasible nor reasonable in accordance with VDOT's State Noise Abatement Policy.*

### **Barrier 3-09**

Barrier 3-09 is located within CNE 049, and extends along Route 460 westbound lanes. Barrier 3-09 is 2,152 feet in length. The barrier has a uniform height of 18 feet, resulting in a total surface area of 38,736 square feet. The barrier would benefit two impacted sites (049-01 to 049-02), representing two residences. The barrier does not benefit any additional non-impacted. This would result in a surface area ratio of 19,368 square feet per benefited receptor. The barrier provides 6 dB(A) of noise reduction. The barrier does not meet the design goal of 7 dB(A) as it does not provide noise reduction of at least 7 dB(A) to at least one impacted site. *The barrier is considered feasible but not reasonable in accordance with VDOT's State Noise Abatement Policy.*

### **Barrier 3-10**

Barrier 3-10 is located within CNE 050, and extends along the proposed Route 460 eastbound lanes. Barrier 3-10 has a total length of 2,616 feet. The barrier has a uniform height of 18 feet, resulting in a total surface area of 47,088 square feet. The barrier would benefit five impacted sites (050-01 to 050-03, 050-07, and 050-08), representing five residences; the barrier does not benefit any additional non-impacted sites. This would result in a surface area ratio of 9,418 square feet per benefited receptor. The barrier provides 3-9 dB(A) of noise reduction. The barrier meets the design goal of 7 dB(A) as it provides noise reduction of at least 7 dB(A) to at least one impacted site. *The barrier is considered feasible but not reasonable in accordance with VDOT's State Noise Abatement Policy.*

### **Barrier 3-11**

Barrier 3-11 is located within CNE 051, and extends along the proposed Route 460 westbound lanes. Barrier 3-11 has a total length of 1,947 feet. The barrier has a uniform height of 18 feet, resulting in a total surface area of 35,046 square feet. The barrier does not benefit any of the impacted sites. The barrier provides 2-4 dB(A) of noise reduction. The barrier does not meet the design goal of 7 dB(A) as it does not provide noise reduction of at least 7 dB(A) to at least one impacted site. *The barrier is neither feasible nor reasonable in accordance with VDOT's State Noise Abatement Policy.*

### **Barrier 3-12**

Barrier 3-12 is located within CNE 052, and extends along the proposed Route 460 westbound lanes. Barrier 3-12 is 2,516 feet in length. The barrier has a uniform height of 14 feet, resulting in a total surface area of 35,224 square feet. The barrier would benefit all 23 impacted sites, representing the athletic fields associated with the Nansemond-Suffolk Academy. The barrier does not benefit any additional non-impacted sites. This would result in a surface area ratio of 1,531 square feet per benefited receptor. The barrier provides 5-9 dB(A) of noise reduction. The barrier meets the design goal of 7 dB(A) as it provides noise reduction of at least 7 dB(A) to at least one impacted site. *The barrier is considered feasible and reasonable in accordance with VDOT's State Noise Abatement Policy.*

### **Barrier 3-13**

Barrier 3-13 is located within CNE 052, and extends along the proposed Route 460 eastbound lanes. Barrier 3-13 is 2,304 feet in length. The barrier has a uniform height of 14 feet, resulting in a total surface area of

32,256 square feet. The barrier would benefit 41 impacted sites, representing the athletic fields associated with the Nansemond-Suffolk Academy. The barrier does not benefit any additional non-impacted sites. This would result in a surface area ratio of 787 square feet per benefited receptor. The barrier provides 4-13 dB(A) of noise reduction. The barrier meets the design goal of 7 dB(A) as it provides noise reduction of at least 7 dB(A) to at least one impacted site. ***The barrier is considered feasible and reasonable in accordance with VDOT's State Noise Abatement Policy.***

#### **Barrier 1-06**

Barrier 1-06 is located within CNE 058, and extends from the proposed Route 460 eastbound off ramp to Route 58 eastbound lanes. A portion of the barrier would be on structure. Barrier 1-06 is 1,982 feet in length. The barrier has a uniform height of 18 feet, resulting in a total surface area of 35,676 square feet. The barrier would benefit 58 impacted sites (due to the amount of sites impacted please refer to the table below), representing 66 apartment units. The barrier would benefit an additional 15 non-impacted sites, representing 25 apartment units. This would result in a surface area ratio of 392 square feet per benefited receptor. The barrier provides 1-14 dB(A) of noise reduction. The barrier meets the design goal of 7 dB(A) as it provides noise reduction of at least 7 dB(A) to at least one impacted site. ***The barrier is considered feasible and reasonable in accordance with VDOT's State Noise Abatement Policy.***

#### **Barrier 1-07**

Barrier 1-07 is located within CNE 060, and extends from the existing Route 58 eastbound lanes to the Route 58 eastbound off ramp. Barrier 1-07 is 2,004 feet in length. The barrier has a uniform height of 14 feet, resulting in a total surface area of 28,056 square feet. The barrier would benefit seven impacted sites (060-02, 060-03, 060-10, 060-12, and 060-17, 060-18 and 060-20), representing two residential homes and the recreational area that is part of the Elephant's Fork Elementary School. The barrier would benefit an additional 16 non-impacted sites (060-01, 060-04 to 060-06, 060-08, 060-09, 060-11, 060-13 to 060-16, 060-19, and 060-21 to 060-24), representing five residential homes and eleven sites at the recreational area. This would result in a surface area ratio of 1,220 square feet per benefited receptor. The barrier provides 4-9 dB(A) of noise reduction. The barrier meets the design goal of 7 dB(A) as it provides noise reduction of at least 7 dB(A) to at least one impacted site. ***The barrier is considered feasible and reasonable in accordance with VDOT's State Noise Abatement Policy.***

#### **Barrier 1-08**

Barrier 1-08 is located within CNE's 061 and 062, and extends from the existing Route 58 westbound on ramp to Route 58 westbound lanes. Barrier 1-08 is 3,322 feet in length. The barrier has a uniform height of 14 feet, resulting in a total surface area of 46,508 square feet. The barrier would benefit 15 impacted sites (061-02 to 061-11, and 061-24 to 061-28), representing 18 single family homes. The barrier would benefit an additional 32 non-impacted sites (061-12 to 061-23, 061-29 to 061-35, 061-37 to 061-46, 062-01 to 062-05), representing 32 single family homes. This would result in a surface area ratio of 930 square feet per benefited receptor. The barrier provides 4-11 dB(A) of noise reduction. The barrier meets the design goal of 7 dB(A) as it provides noise reduction of at least 7 dB(A) to at least one impacted site. ***The barrier is considered feasible and reasonable in accordance with VDOT's State Noise Abatement Policy.***

Table E-3: Evaluated Noise Barrier Parameters

Barrier	Insertion Loss (IL)	Previous Alternative Equivalent	Height (Range) (ft)	Total Length (ft)	Total Area (SF)	Benefited	Area/Benefited	Cost (\$31/ft <sup>2</sup> )
Barrier 4-02	3-8	4	14	971	13,569	1	13,569	\$420,639
Barrier 4-03	0-1	4	30	2,107	63,210	0	NA	\$1,959,510
Barrier 4-04	3-6	4	14	1,251	17,514	1	17,514	\$542,934
Barrier 2N-24	2-7	2N	22	1,945	42,790	2	21,395	\$1,326,490
Barrier 2N-25	5-7	2N	22	1,963	43,186	3	14,395	\$1,338,766
Barrier 3-37	4-7	3	18	5,025	90,450	20	4,523	\$2,803,950
Barrier 3-38	3-4	3	18	3,394	61,092	0	NA	\$1,893,852
Barrier 3-39	4-8	3	30	4,295	128,850	3	42,950	\$3,994,350
Barrier 3-40	4-7	3	14	1,363	19,082	1	19,082	\$591,542
Barrier 3-42	2-11	3	18	3,384	60,912	4	15,228	\$1,888,272
Barrier 3-43	3-4	3	18	5,892	106,056	0	NA	\$3,287,736
Barrier 3-09	6	3	18	2,152	38,736	2	19,368	\$1,200,816
Barrier 3-10	3-9	3	18	2,616	47,088	5	9,418	\$1,459,728
Barrier 3-11	2-4	3	18	1,947	35,046	0	NA	\$1,086,426
Barrier 3-12	5-9	3	14	2,516	35,224	23	1,531	\$1,091,944
Barrier 3-13	4-13	3	14	2,304	32,256	41	787	\$999,936
Barrier 1-06	2-14	1	18	1,982	35,676	91	392	\$1,105,956
Barrier 1-07	4-9	1	14	2,004	28,056	23	1,220	\$869,736
Barrier 1-08	4-11	1	14	3,322	46,508	50	930	\$1,441,748
	Indicates the value is below the maximum square footage of abatement per benefited receptor of 1,600 SF/BR							



Table E-4: Predicted Noise Barrier Insertion Losses

Receptor Number	No. of Dwelling / Recreational Units	Predicted Future Design Build Noise Levels (2040 - NO Barrier)(dBA)	Predicted Future Design Build Noise Levels (2040 - with Barrier) (dBA)	Predicted Insertion Loss (dBA)
<b>Barrier 4-02</b>				
158-01	1	68	60	8
158-02	1	63	60	3
<b>Barrier 4-03</b>				
160-03	1	69	69	0
160-04	1	66	66	1
160-05	1	72	72	0
160-06	1	66	65	1
<b>Barrier 4-04</b>				
160-11	1	66	59	6
160-12	1	62	59	3
<b>Barrier 2N-24</b>				
161-17	1	62	59	2
161-18	1	62	58	4
161-19	1	63	57	5
161-20	1	64	57	7
<b>Barrier 2N-25</b>				
165-01	1	60	55	5
165-02	1	59	54	5
165-03	1	63	57	7
<b>Barrier 3-37</b>				
102-01	1	60	56	5
102-02	1	60	55	5
102-03	1	59	55	5
102-04	1	58	54	4
102-05	1	59	54	5
102-06	1	60	55	5
102-07	1	61	55	6
102-08	1	62	56	6
102-09	1	63	57	7
102-10	1	63	57	7
102-11	1	63	57	7
102-12	1	63	56	7
102-13	1	62	56	7
102-14	1	62	55	6
102-15	1	62	56	6
102-16	1	61	55	6

Receptor Number	No. of Dwelling / Recreational Units	Predicted Future Design Build Noise Levels (2040 - NO Barrier)(dBA)	Predicted Future Design Build Noise Levels (2040 - with Barrier) (dBA)	Predicted Insertion Loss (dBA)
102-17	1	61	55	6
102-18	1	61	55	6
102-19	1	60	55	6
102-20	1	62	56	6
102-21	1	60	55	5
<b>Barrier 3-38</b>				
105-01	1	58	54	4
105-05	1	64	61	3
105-06	1	61	57	4
105-07	1	60	56	4
105-08	1	63	59	4
105-09	1	66	63	3
<b>Barrier 3-39</b>				
105-12	1	55	50	4
105-13	1	53	49	4
105-14	1	54	50	4
105-15	1	54	50	4
105-18	1	56	51	4
105-19	1	57	53	4
105-20	1	59	54	5
105-21	1	59	55	5
105-22	1	67	58	8
<b>Barrier 3-40</b>				
107-15	1	62	58	4
107-16	1	69	62	7
<b>Barrier 3-42</b>				
047-01	1	68	61	7
047-02	1	75	64	11
108-01	1	55	52	2
108-15	1	69	64	6
108-16	1	65	61	4
108-17	1	64	59	5
<b>Barrier 3-43</b>				
108-02	1	65	60	4
108-03	1	60	56	4
108-04	1	54	51	3
108-05	1	54	51	3
108-06	1	55	52	3
108-07	1	54	51	3

Receptor Number	No. of Dwelling / Recreational Units	Predicted Future Design Build Noise Levels (2040 - NO Barrier)(dBA)	Predicted Future Design Build Noise Levels (2040 - with Barrier) (dBA)	Predicted Insertion Loss (dBA)
108-08	1	56	53	3
<b>Barrier 3-09</b>				
049-01	1	63	57	6
049-02	1	63	57	6
<b>Barrier 3-10</b>				
050-01	1	67	60	7
050-02	1	64	58	6
050-03	1	59	55	5
050-04	1	60	55	4
050-05	1	57	55	3
050-06	1	62	58	4
050-07	1	65	59	6
050-08	1	72	62	9
<b>Barrier 3-11</b>				
051-02	1	66	62	4
051-03	1	64	60	4
051-04	1	60	56	4
051-05	1	57	54	3
051-06	1	56	53	2
051-07	1	55	53	2
051-08	1	56	54	2
051-09	1	55	53	2
051-10	1	55	53	2
051-11	1	54	52	2
051-12	1	54	52	2
<b>Barrier 3-12</b>				
052-01	1	74	64	9
052-02	1	69	63	7
052-03	1	66	61	5
052-04	1	64	60	5
052-05	1	63	58	5
052-06	1	66	61	5
052-07	1	64	60	5
052-08	1	74	64	9
052-09	1	69	63	7
052-10	1	66	61	5
052-11	1	64	60	5
052-12	1	63	58	5
052-13	1	69	63	6

Receptor Number	No. of Dwelling / Recreational Units	Predicted Future Design Build Noise Levels (2040 - NO Barrier)(dBA)	Predicted Future Design Build Noise Levels (2040 - with Barrier) (dBA)	Predicted Insertion Loss (dBA)
052-14	1	66	61	5
052-15	1	64	60	5
052-16	1	66	61	5
052-17	1	64	59	5
052-74	1	66	61	5
052-75	1	65	60	5
052-76	1	63	59	5
052-77	1	65	60	5
052-78	1	64	59	5
052-79	1	64	59	5
<b>Barrier 3-13</b>				
052-30	1	66	61	4
052-31	1	67	62	5
052-32	1	68	62	6
052-33	1	69	63	6
052-34	1	64	60	4
052-35	1	65	60	5
052-36	1	66	61	5
052-37	1	67	62	5
052-38	1	64	59	4
052-39	1	64	60	5
052-40	1	65	60	5
052-41	1	62	58	4
052-42	1	65	60	5
052-43	1	65	60	5
052-44	1	64	59	5
052-45	1	67	62	5
052-46	1	65	61	5
052-47	1	65	60	5
052-48	1	69	63	6
052-49	1	67	62	5
052-50	1	66	61	5
052-51	1	73	64	9
052-52	1	70	63	7
052-53	1	68	62	6
052-54	1	65	60	5
052-55	1	66	61	5
052-56	1	68	63	6
052-57	1	72	64	8

Receptor Number	No. of Dwelling / Recreational Units	Predicted Future Design Build Noise Levels (2040 - NO Barrier)(dBA)	Predicted Future Design Build Noise Levels (2040 - with Barrier) (dBA)	Predicted Insertion Loss (dBA)
052-58	1	77	65	13
052-59	1	64	59	5
052-60	1	65	61	5
052-61	1	67	62	5
052-62	1	70	63	7
052-63	1	73	64	9
052-64	1	64	59	5
052-65	1	65	60	5
052-66	1	66	61	5
052-67	1	68	62	6
052-68	1	71	64	7
052-69	1	63	58	5
052-70	1	64	60	5
052-71	1	65	61	5
052-72	1	67	62	5
052-73	1	69	63	6
<b>Barrier 1-06</b>				
058-01A	1	69	61	8
058-01B	1	74	63	11
058-01C	1	75	66	10
058-02A	1	70	61	10
058-02B	1	76	63	12
058-02C	1	76	66	10
058-03A	1	64	60	3
058-03B	1	68	62	6
058-03C	1	73	65	8
058-04A	1	62	59	3
058-04B	1	67	62	5
058-04C	1	73	65	9
058-05A	1	63	60	3
058-05B	1	67	62	5
058-05C	1	72	65	8
058-06A	1	63	54	10
058-06B	1	68	58	10
058-06C	1	73	64	8
058-07A	1	62	59	2
058-07B	1	65	61	3
058-07C	1	70	64	6
058-08A	1	59	58	1

Receptor Number	No. of Dwelling / Recreational Units	Predicted Future Design Build Noise Levels (2040 - NO Barrier)(dBA)	Predicted Future Design Build Noise Levels (2040 - with Barrier) (dBA)	Predicted Insertion Loss (dBA)
058-08B	1	63	60	3
058-08C	1	71	64	7
058-09A	1	62	56	6
058-09B	1	63	60	4
058-09C	1	74	65	9
058-10A	1	71	59	12
058-10B	1	75	62	13
058-10C	1	76	66	10
058-11A	1	61	53	8
058-11B	1	64	60	4
058-11C	1	74	65	9
058-12A	1	72	59	13
058-12B	1	75	62	13
058-12C	1	76	67	9
058-13A	1	64	54	10
058-13B	1	68	59	10
058-13C	1	74	65	9
058-14A	1	68	58	10
058-14B	1	74	62	12
058-14C	1	76	67	9
058-15A	1	66	55	11
058-15B	1	69	59	10
058-15C	1	74	66	8
058-16A	1	73	59	14
058-16B	1	76	62	14
058-16C	1	76	68	8
058-17A	1	66	55	12
058-17B	1	69	58	11
058-17C	1	75	66	8
058-18A	1	71	57	14
058-18B	1	74	61	13
058-18C	1	76	68	8
058-19A	1	59	54	5
058-19B	1	63	58	5
058-19C	1	75	67	7
058-20A	1	55	50	5
058-20B	1	76	63	13
058-20C	1	76	69	7
058-21A	1	62	56	6



Receptor Number	No. of Dwelling / Recreational Units	Predicted Future Design Build Noise Levels (2040 - NO Barrier)(dBA)	Predicted Future Design Build Noise Levels (2040 - with Barrier) (dBA)	Predicted Insertion Loss (dBA)
058-21B	1	67	59	7
058-21C	1	70	64	6
058-22A	1	62	56	7
058-22B	1	67	60	7
058-22C	1	71	64	7
058-23A	1	62	56	6
058-23B	1	67	60	7
058-23C	1	69	64	6
058-24A	1	62	56	6
058-24B	1	67	60	6
058-24C	1	70	64	6
058-25A	1	63	57	6
058-25B	1	68	61	7
058-25C	1	70	63	6
058-26A	1	64	57	6
058-26B	1	68	61	7
058-26C	1	70	63	6
058-27A	6	60	54	6
058-27B	6	64	57	7
058-27C	6	68	63	6
058-28A	4	56	55	2
058-28B	4	60	58	2
058-28C	4	67	62	5
058-29	1	57	55	2
<b>Barrier 1-07</b>				
060-01	1	62	57	5
060-02	1	68	60	7
060-03	1	70	61	9
060-04	1	62	56	5
060-05	1	61	56	5
060-06	1	61	56	5
060-07	1	60	55	4
060-08	1	59	55	5
060-09	1	65	58	7
060-10	1	67	60	7
060-11	1	65	58	7
060-12	1	68	60	8
060-13	1	63	57	6
060-14	1	64	58	6

Receptor Number	No. of Dwelling / Recreational Units	Predicted Future Design Build Noise Levels (2040 - NO Barrier)(dBA)	Predicted Future Design Build Noise Levels (2040 - with Barrier) (dBA)	Predicted Insertion Loss (dBA)
060-15	1	62	56	5
060-16	1	62	56	6
060-17	1	69	60	9
060-18	1	69	60	9
060-19	1	65	59	7
060-20	1	66	59	7
060-21	1	65	59	6
060-22	1	65	59	7
060-23	1	65	59	7
060-24	1	65	58	7
<b>Barrier 1-08</b>				
061-01	1	65	60	6
061-02	1	70	62	9
061-03	1	72	62	10
061-04	1	71	62	9
061-05	1	71	61	9
061-06	1	71	62	10
061-07	1	71	62	9
061-08	1	71	62	9
061-09	1	71	61	10
061-10	1	70	61	9
061-11	1	69	61	9
061-12	1	62	57	5
061-13	1	61	56	6
061-14	1	62	56	6
061-15	1	62	56	6
061-16	1	62	56	6
061-17	1	62	56	7
061-18	1	62	56	7
061-19	1	62	56	6
061-20	1	62	56	6
061-21	1	62	56	6
061-22	1	60	54	6
061-23	1	65	58	7
061-24	1	67	60	8
061-25	1	70	61	9
061-26	1	72	62	10
061-27	1	71	61	9
061-28	1	66	59	7

Receptor Number	No. of Dwelling / Recreational Units	Predicted Future Design Build Noise Levels (2040 - NO Barrier)(dBA)	Predicted Future Design Build Noise Levels (2040 - with Barrier) (dBA)	Predicted Insertion Loss (dBA)
061-29	1	63	57	7
061-30	1	63	56	7
061-31	1	63	56	7
061-32	1	59	53	6
061-33	1	59	54	6
061-34	1	59	53	6
061-35	1	58	53	6
061-36	1	59	55	4
061-37	1	59	54	5
061-38	1	58	53	5
061-39	1	58	52	5
061-40	1	58	52	6
061-41	1	58	52	6
061-42	1	57	52	6
061-43	1	57	52	6
061-44	1	57	52	5
061-45	1	58	53	5
061-46	1	59	53	6
062-01	1	65	58	7
062-02	1	64	57	7
062-03	1	66	59	7
062-04	1	65	58	7
062-05	1	62	56	6
*	Dwelling Units may refer to residential and/or recreational units			
**	Insertion Loss Difference may not match due to rounding			
	Indicates noise impact			
	Site is considered to be benefited by the proposed barrier			

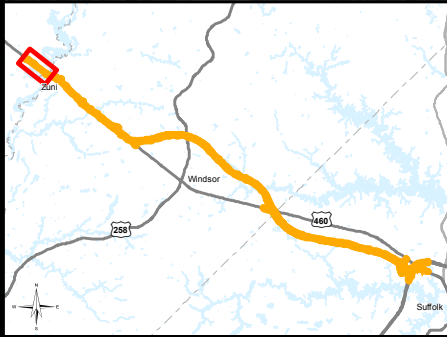
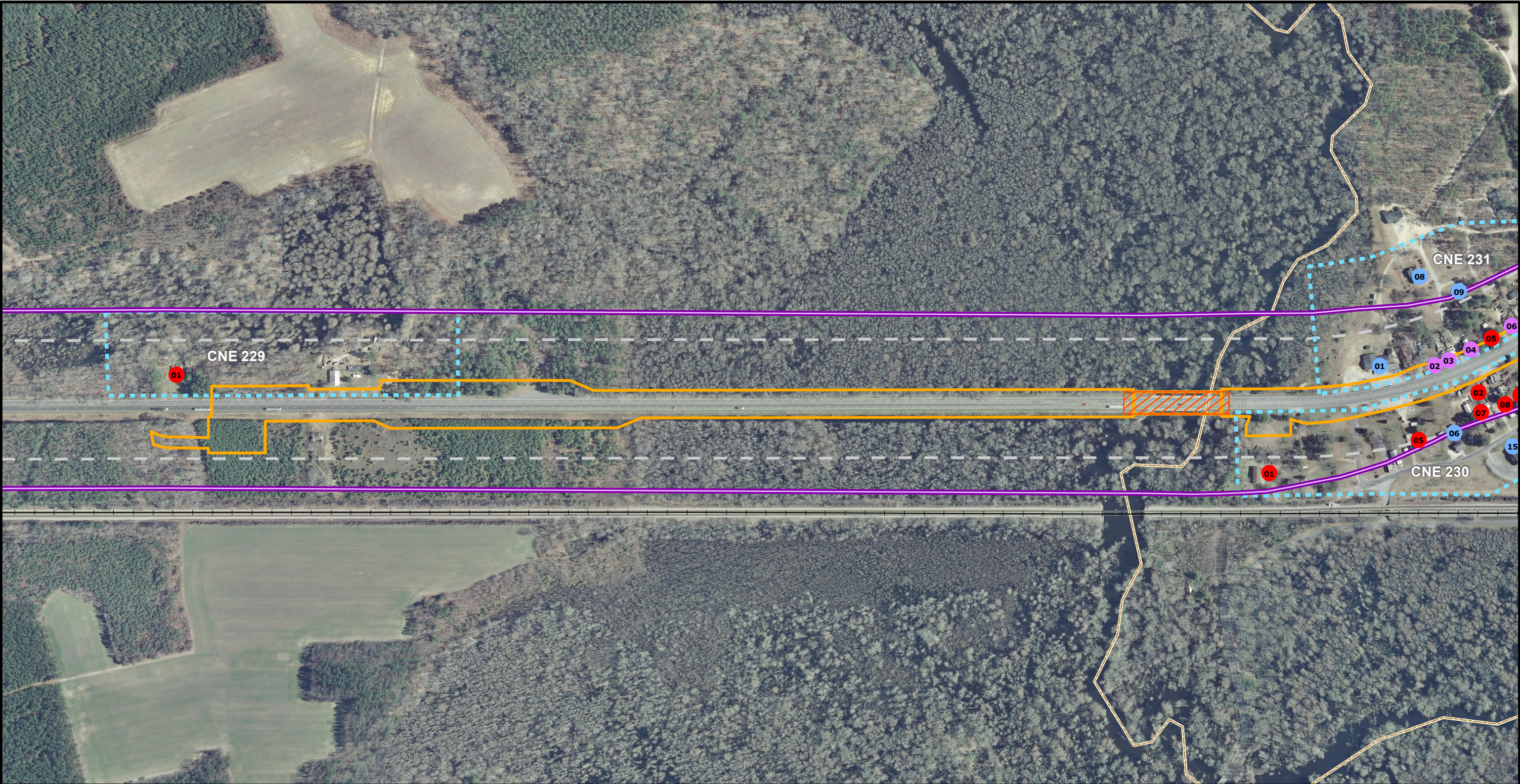
## E.4 SUMMARY

The Preferred Alternative is predicted to impact 310 noise sensitive sites under the future design year (2040) build condition - 236 residences and 74 noise sensitive sites associated with recreational areas, parks, and cemeteries (represented by 302 noise receptors). Of these impacted sites, 126 are predicted to be only impacted by traffic noise due to noise levels approaching or exceeding the Noise Abatement Criteria (NAC), 98 are only impacted because of the substantial increase criterion, 47 noise sensitive sites are impacted by both the NAC and substantial increase criterion, and 39 impacts are assumed at locations that were considered potential acquisitions or relocations in the Draft SEIS noise analysis but are not potential acquisitions or relocations for the Preferred Alternative.

A total of 19 noise barriers were evaluated for areas predicted to be impacted by traffic noise under the future design year build condition for the Preferred Alternative. Five noise barriers were found to be both feasible and reasonable in accordance with VDOT's State Noise Abatement Policy for the Preferred Alternative. The barriers found to be reasonable and feasible are Barrier 1-06 in CNE 058, Barrier 1-07 in CNE 060, Barrier 1-08 in CNE 061 and CNE 062, and Barriers 3-12 and 3-13 in CNE 052. Details of the parameters and predicted insertion losses for the barriers found to be feasible and reasonable are in **Table E-3** and **Table E-4** respectively.

The barrier analysis for the SEIS examined barrier heights in 2 foot increments. This process does not allow for fine-tuning of the SF/BR value with a variety of barrier heights, which would be carried out in a final design noise analysis. As a result, this analysis gives preliminary information on the potential cost-effectiveness of barriers for each CNE, but it is not the final determination on the reasonableness of any of the noise barriers evaluated. All noise-sensitive areas adjacent to the study corridor would be re-evaluated for noise abatement in a much more detailed manner during the design phase.





**Modeled Receptors**

- 01 Impacted and Benefited
- 01 Impacted and Not Benefited
- 01 Not Impacted and Benefited
- 01 Not Impacted and Not Benefited
- 01 Not Impacted and Not Benefited
- 01 Potential Acquisition
- 01 Potentially Different due to Preferred Alternative Shift (to be studied in final design)

- Preferred Alternative, Build Section
- Proposed Bridge
- 66 dBA Contour
- Ambient Monitoring Location
- Potential Barrier: Reasonable & Feasible
- Potential Barrier: Not Reasonable or Feasible

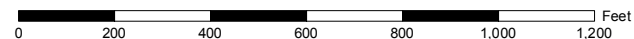
- Common Noise Environment
- Inventory Corridor
- County Boundary

Receptor 01 = CNE XXX-01 in report



ROUTE 460 PROJECT  
SOUTHEAST VA  
VDOT

VDOT Virginia Department of Transportation  
U.S. Route 460 Corridor Improvements Project  
VDOT Project No.0460-969-007, P101, R201, C501  
Southampton County, Isle of Wight County, and City of Suffolk, Virginia



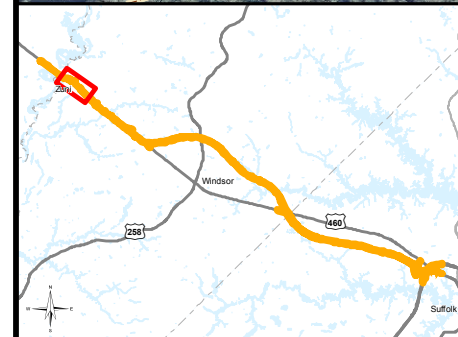
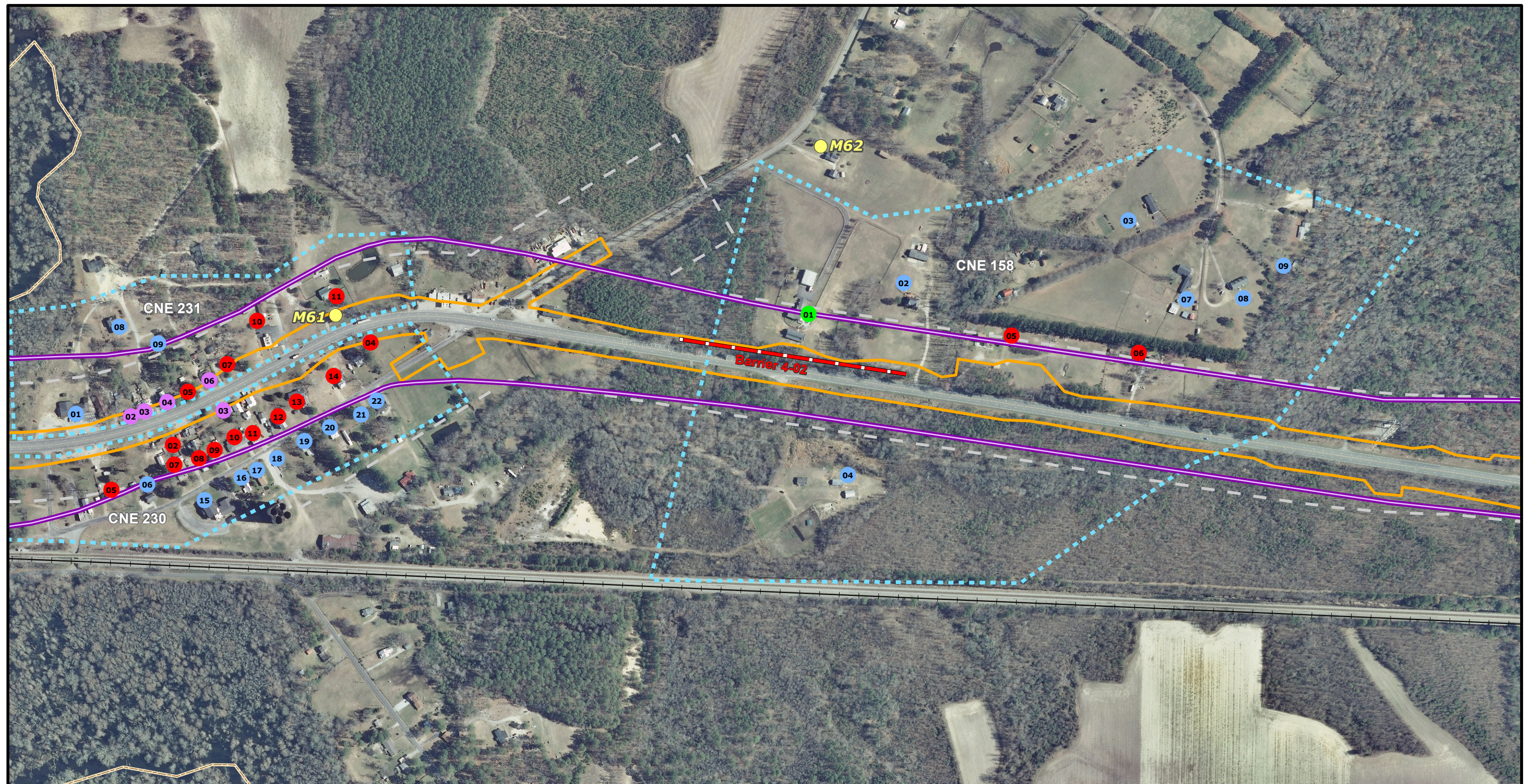
**Figure E-1:  
Noise Modeling Results  
Preferred Alternative**

Sheet 1 of 17

Route 460 Project Southeast VA  
Supplemental Environmental Impact Statement

Source: VDOT





#### Modeled Receptors

- 01 Impacted and Benefited
- 02 Impacted and Not Benefited
- 03 Not Impacted and Benefited
- 04 Not Impacted and Not Benefited
- 05 Potential Acquisition
- 06 Potentially Different due to Preferred Alternative Shift (to be studied in final design)

- Preferred Alternative, Build Section
- Proposed Bridge
- 66 dBA Contour
- Ambient Monitoring Location
- Potential Barrier: Reasonable & Feasible
- Potential Barrier: Not Reasonable or Feasible

- Common Noise Environment
- Inventory Corridor
- County Boundary

Receptor 01 = CNE XXX-01 in report



ROUTE 460 PROJECT  
SOUTHEAST VA  
VDOT

VDOT Virginia Department of Transportation  
U.S. Route 460 Corridor Improvements Project  
VDOT Project No.0460-969-007, P101, R201, C501  
Southampton County, Isle of Wight County, and City of Suffolk, Virginia

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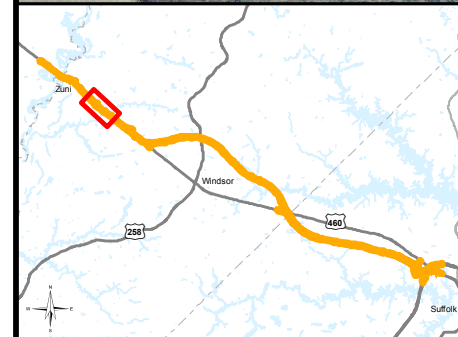
## Figure E-1: Noise Modeling Results Preferred Alternative

Sheet 2 of 17

Route 460 Project Southeast VA  
Supplemental Environmental Impact Statement

Source: VDOT





#### Modeled Receptors

- 01 Impacted and Benefited
- 01 Impacted and Not Benefited
- 01 Not Impacted and Benefited
- 01 Not Impacted and Not Benefited
- 01 Potential Acquisition
- 01 Potentially Different due to Preferred Alternative Shift (to be studied in final design)

- Preferred Alternative, Build Section
- Proposed Bridge
- 66 dBA Contour
- Ambient Monitoring Location
- Potential Barrier: Reasonable & Feasible
- Potential Barrier: Not Reasonable or Feasible

- Common Noise Environment
- Inventory Corridor
- County Boundary

Receptor 01 = CNE XXX-01 in report



ROUTE 460 PROJECT  
SOUTHEAST VA  
VDOT



Virginia Department of Transportation  
U.S. Route 460 Corridor Improvements Project  
VDOT Project No.0460-969-007, P101, R201, C501  
Southampton County, Isle of Wight County, and City of Suffolk, Virginia

0 200 400 600 800 1,000 1,200 Feet

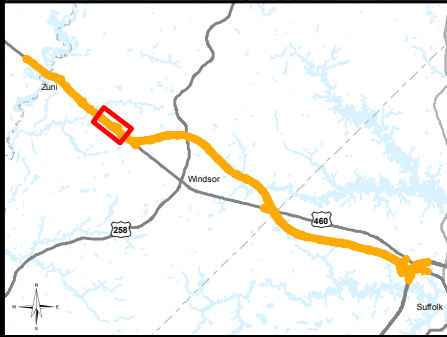
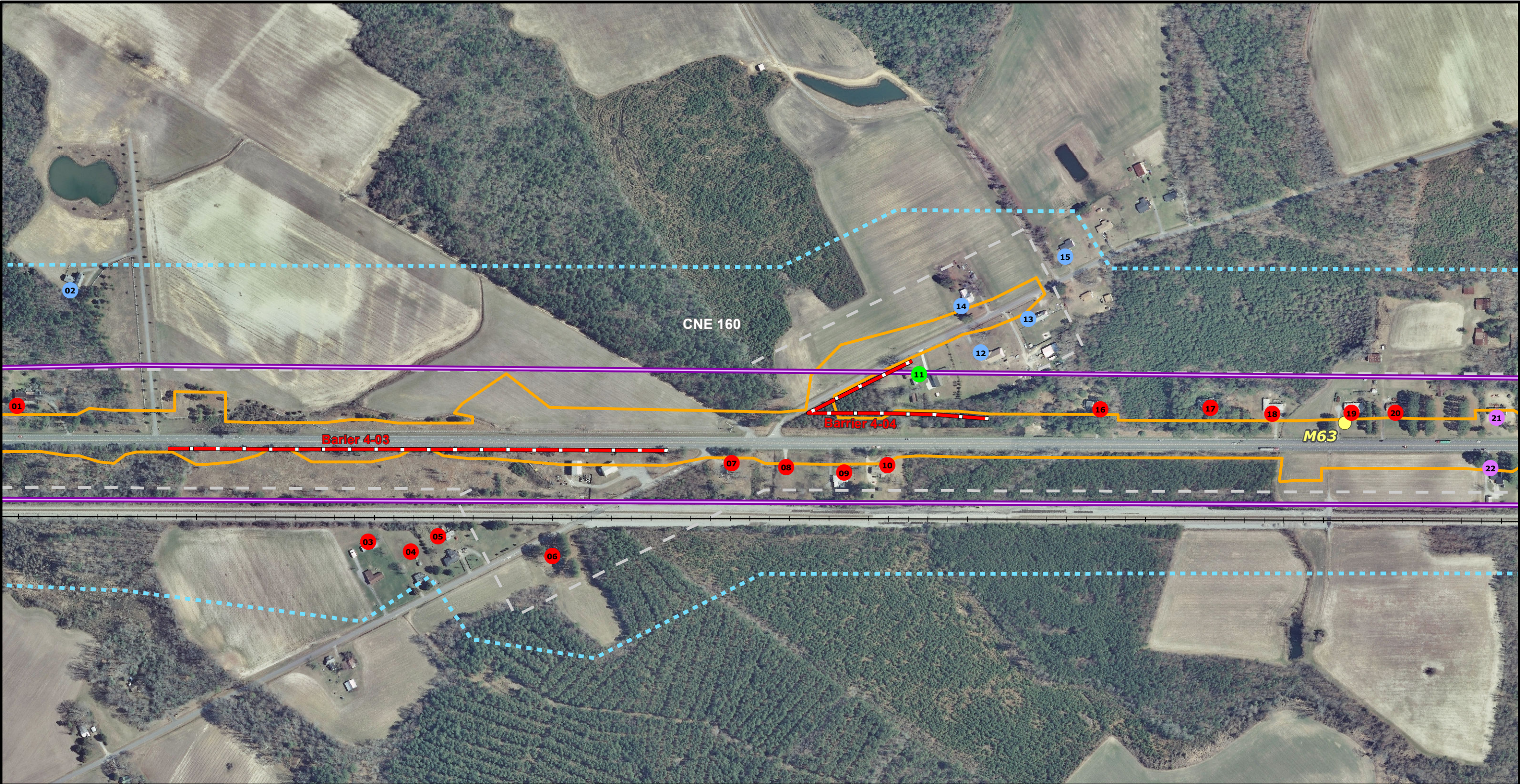
## Figure E-1: Noise Modeling Results Preferred Alternative

Sheet 3 of 17

Route 460 Project Southeast VA  
Supplemental Environmental Impact Statement

Source: VDOT





**Modeled Receptors**

- 01 Impacted and Benefited
- 02 Impacted and Not Benefited
- 03 Not Impacted and Benefited
- 04 Not Impacted and Not Benefited
- 05 Not Impacted and Not Benefited
- 06 Potentially Different due to Preferred Alternative Shift (to be studied in final design)

- Preferred Alternative, Build Section
- Proposed Bridge
- 66 dBA Contour
- Ambient Monitoring Location
- Potential Barrier: Reasonable & Feasible
- Potential Barrier: Not Reasonable or Feasible

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- Inventory Corridor
- County Boundary

Receptor 01 = CNE XXX-01 in report



ROUTE 460 PROJECT  
SOUTHEAST VA  
VDOT

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U.S. Route 460 Corridor Improvements Project  
VDOT Project No.0460-969-007, P101, R201, C501  
Southampton County, Isle of Wight County, and City of Suffolk, Virginia

0 200 400 600 800 1,000 1,200 Feet

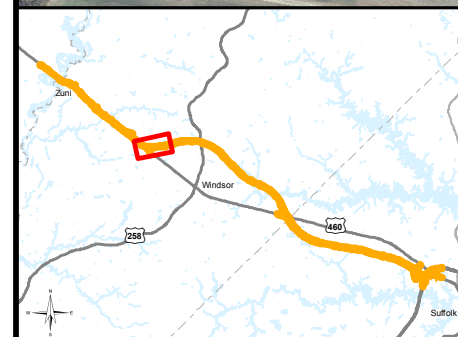
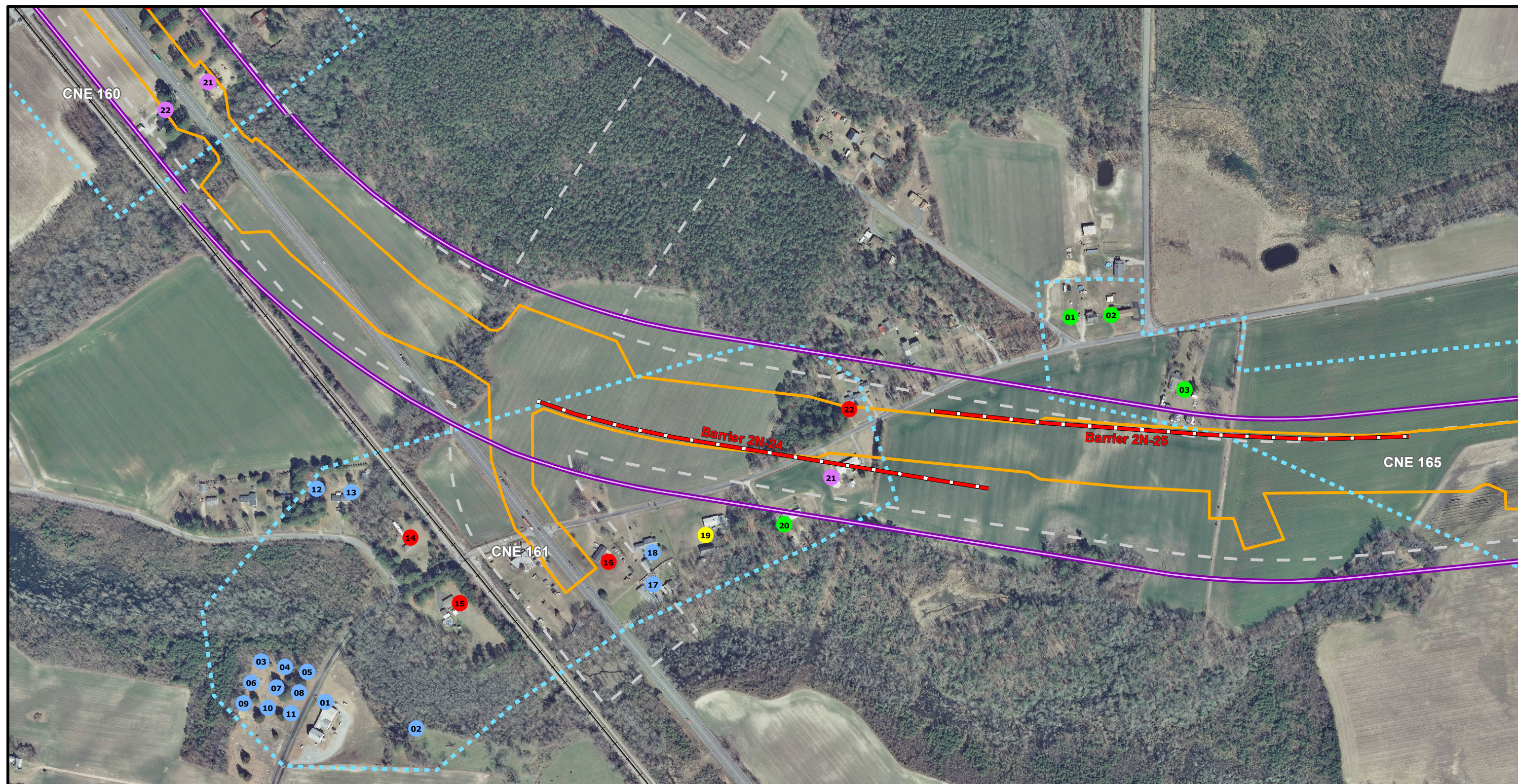
**Figure E-1:  
Noise Modeling Results  
Preferred Alternative**

Sheet 4 of 17

Route 460 Project Southeast VA  
Supplemental Environmental Impact Statement

Source: VDOT





#### Modeled Receptors

- 01 Impacted and Benefited
- 01 Impacted and Not Benefited
- 01 Not Impacted and Benefited
- 01 Not Impacted and Not Benefited
- 01 Potential Acquisition
- 01 Potentially Different due to Preferred Alternative Shift (to be studied in final design)

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- Proposed Bridge
- 66 dBA Contour
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- Potential Barrier: Not Reasonable or Feasible

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- County Boundary

Receptor 01 = CNE XXX-01 in report



ROUTE 460 PROJECT  
SOUTHEAST VA  
VDOT

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VDOT Project No.0460-969-007, P101, R201, C501  
Southampton County, Isle of Wight County, and City of Suffolk, Virginia

0 200 400 600 800 1,000 1,200 Feet

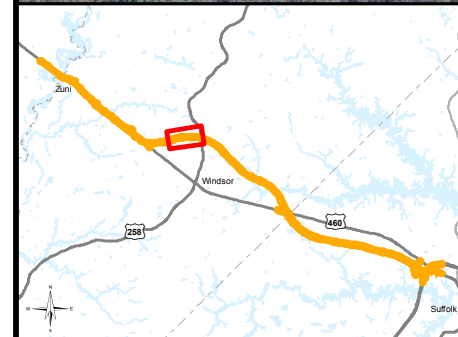
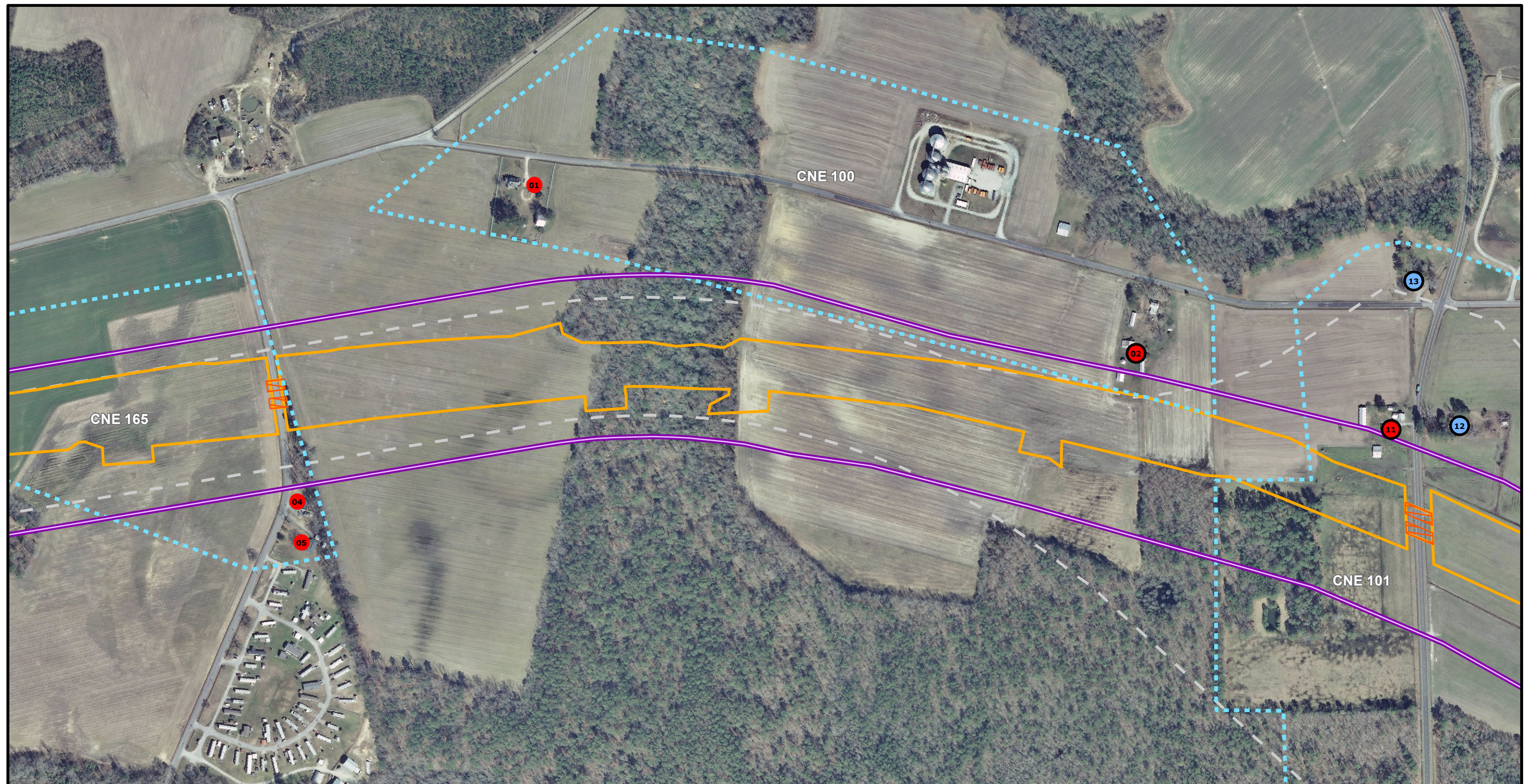
## Figure E-1: Noise Modeling Results Preferred Alternative

Sheet 5 of 17

Route 460 Project Southeast VA  
Supplemental Environmental Impact Statement

Source: VDOT





#### Modeled Receptors

- 01 Impacted and Benefited
  - 01 Impacted and Not Benefited
  - 01 Not Impacted and Benefited
  - 01 Not Impacted and Not Benefited
  - 01 Potential Acquisition
  - Potentially Different due to Preferred Alternative Shift (to be studied in final design)
- Preferred Alternative, Build Section
  - ▨ Proposed Bridge
  - 66 dBA Contour
  - Ambient Monitoring Location
  - Potential Barrier: Reasonable & Feasible
  - Potential Barrier: Not Reasonable or Feasible

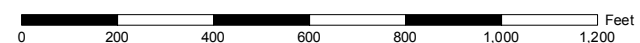
- - - Common Noise Environment
- - - Inventory Corridor
- County Boundary

Receptor 01 = CNE XXX-01 in report



ROUTE 460 PROJECT  
SOUTHEAST VA  
VDOT

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U.S. Route 460 Corridor Improvements Project  
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Southampton County, Isle of Wight County, and City of Suffolk, Virginia



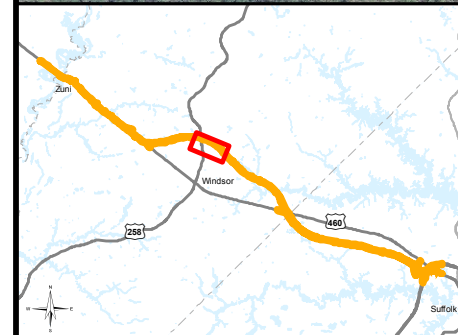
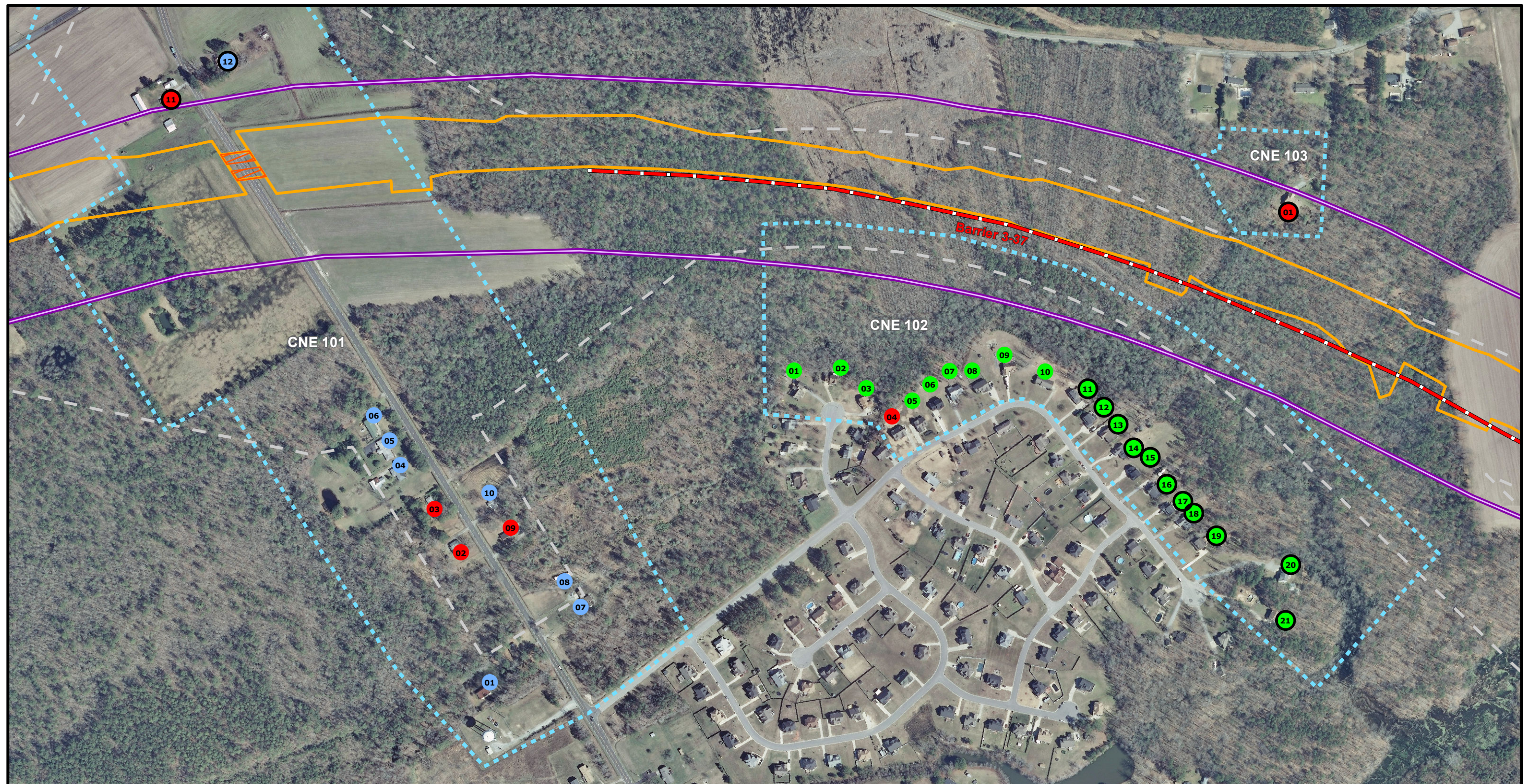
## Figure E-1: Noise Modeling Results Preferred Alternative

Sheet 6 of 17

Route 460 Project Southeast VA  
Supplemental Environmental Impact Statement

Source: VDOT





#### Modeled Receptors

- 01 Impacted and Benefited
- 01 Impacted and Not Benefited
- 01 Not Impacted and Benefited
- 01 Not Impacted and Not Benefited
- 01 Potential Acquisition
- Potentially Different due to Preferred Alternative Shift (to be studied in final design)

- Preferred Alternative, Build Section
- ▨ Proposed Bridge
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- Potential Barrier: Not Reasonable or Feasible

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Receptor 01 = CNE XXX-01 in report



ROUTE 460 PROJECT  
SOUTHEAST VA  
VDOT

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U.S. Route 460 Corridor Improvements Project  
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Southampton County, Isle of Wight County, and City of Suffolk, Virginia

0 200 400 600 800 1,000 1,200 Feet

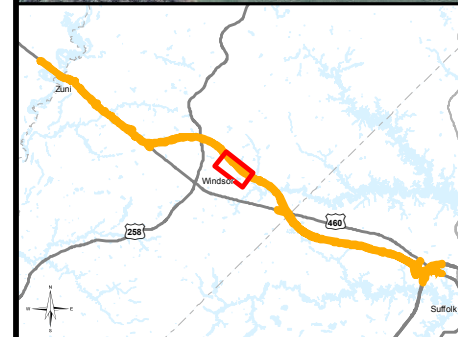
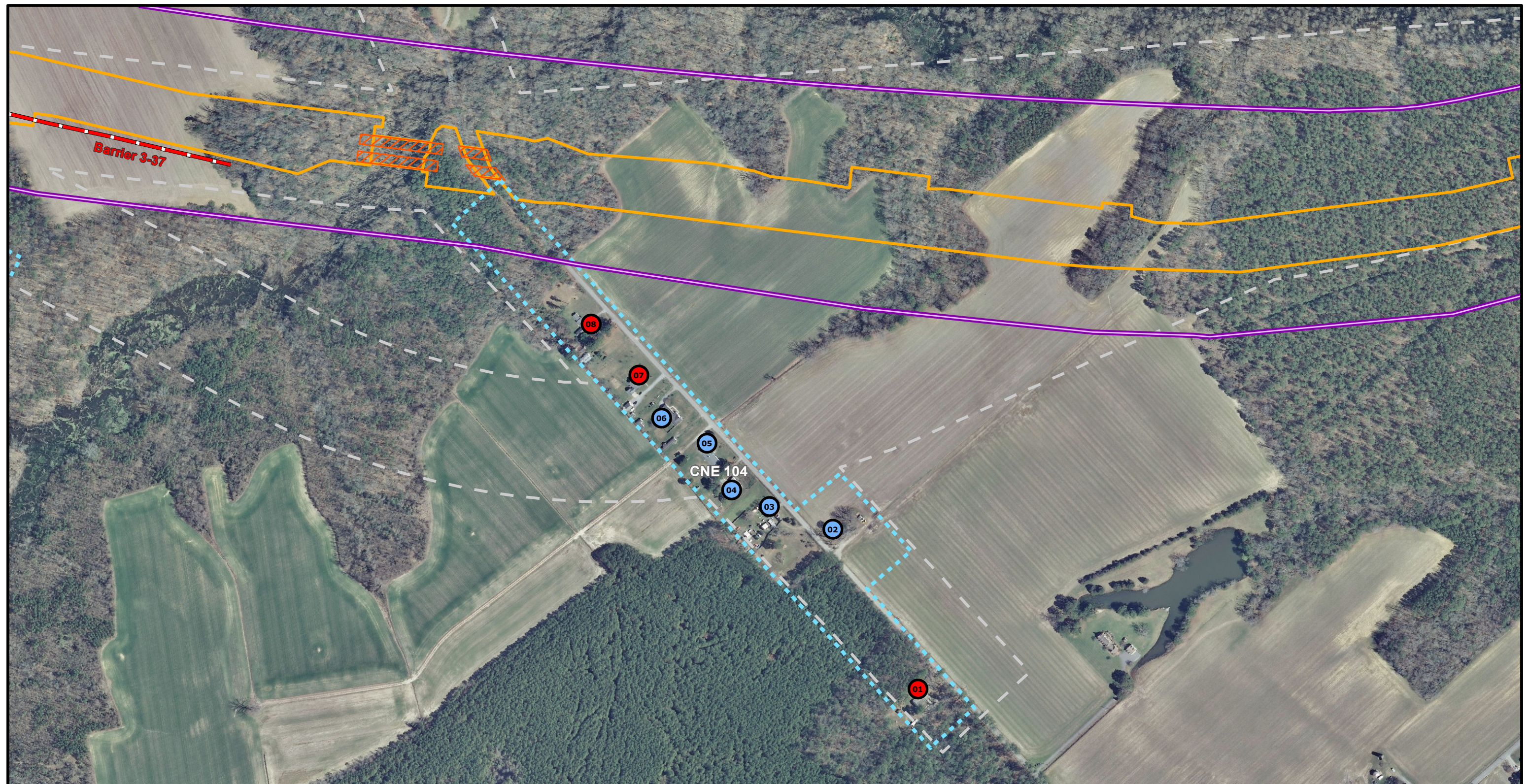
## Figure E-1: Noise Modeling Results Preferred Alternative

Sheet 7 of 17

Route 460 Project Southeast VA  
Supplemental Environmental Impact Statement

Source: VDOT





#### Modeled Receptors

- 01 Impacted and Benefited
- 01 Impacted and Not Benefited
- 01 Not Impacted and Benefited
- 01 Not Impacted and Not Benefited
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Receptor 01 = CNE XXX-01 in report



ROUTE 460 PROJECT  
SOUTHEAST VA  
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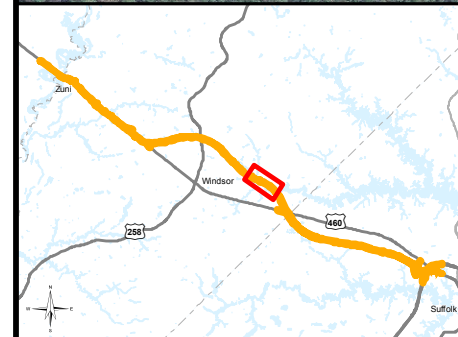
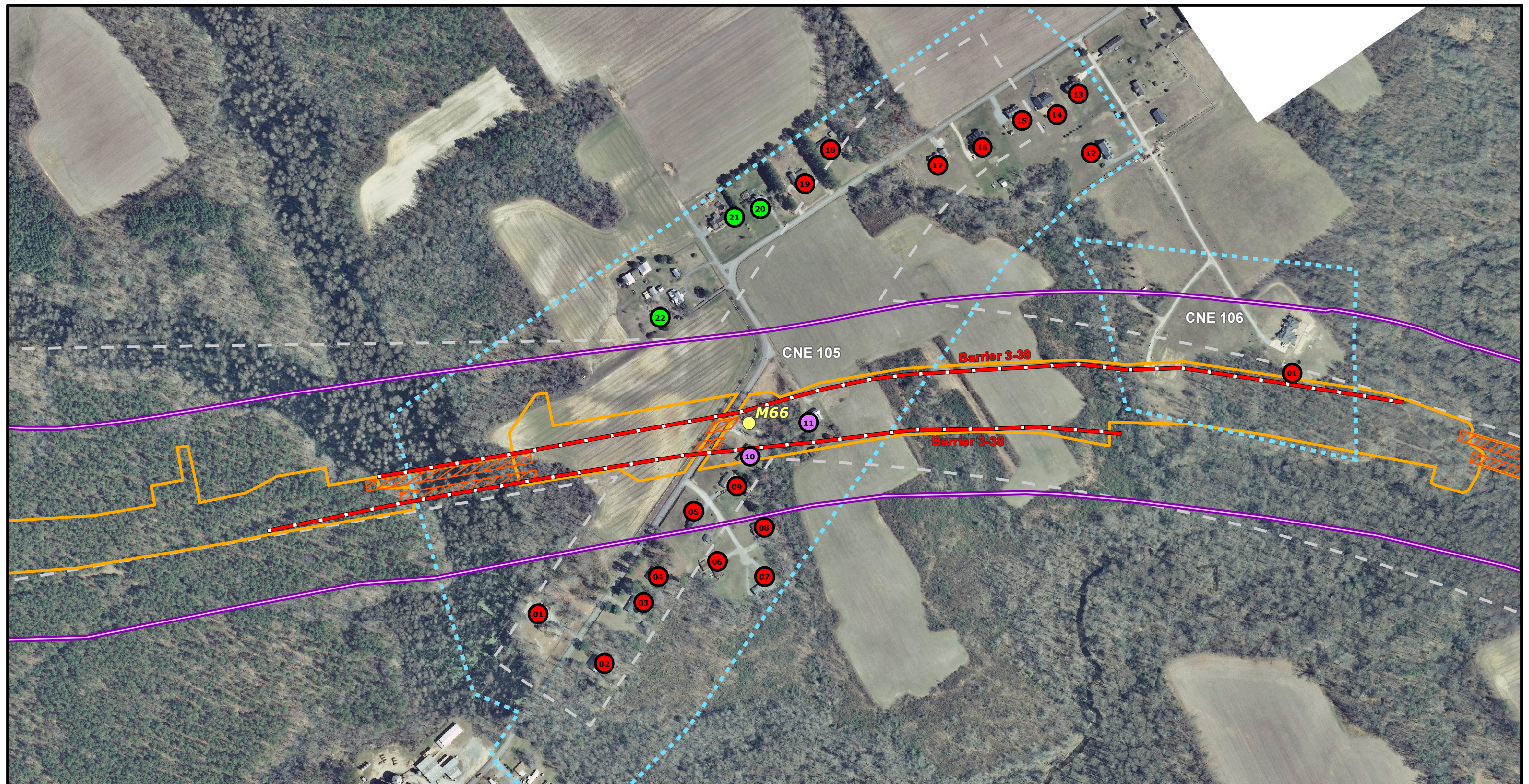
0 200 400 600 800 1,000 1,200 Feet

## Figure E-1: Noise Modeling Results Preferred Alternative

Sheet 8 of 17  
Route 460 Project Southeast VA  
Supplemental Environmental Impact Statement

Source: VDOT





#### Modeled Receptors

- 01 Impacted and Benefited
- 01 Impacted and Not Benefited
- 01 Not Impacted and Benefited
- 01 Not Impacted and Not Benefited
- 01 Potential Acquisition
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- Potential Barrier: Reasonable & Feasible
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Receptor 01 = CNE XXX-01 in report



ROUTE 460 PROJECT  
SOUTHEAST VA  
VDOT

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U.S. Route 460 Corridor Improvements Project  
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Southampton County, Isle of Wight County, and City of Suffolk, Virginia

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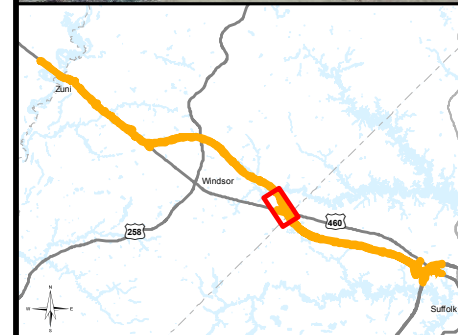
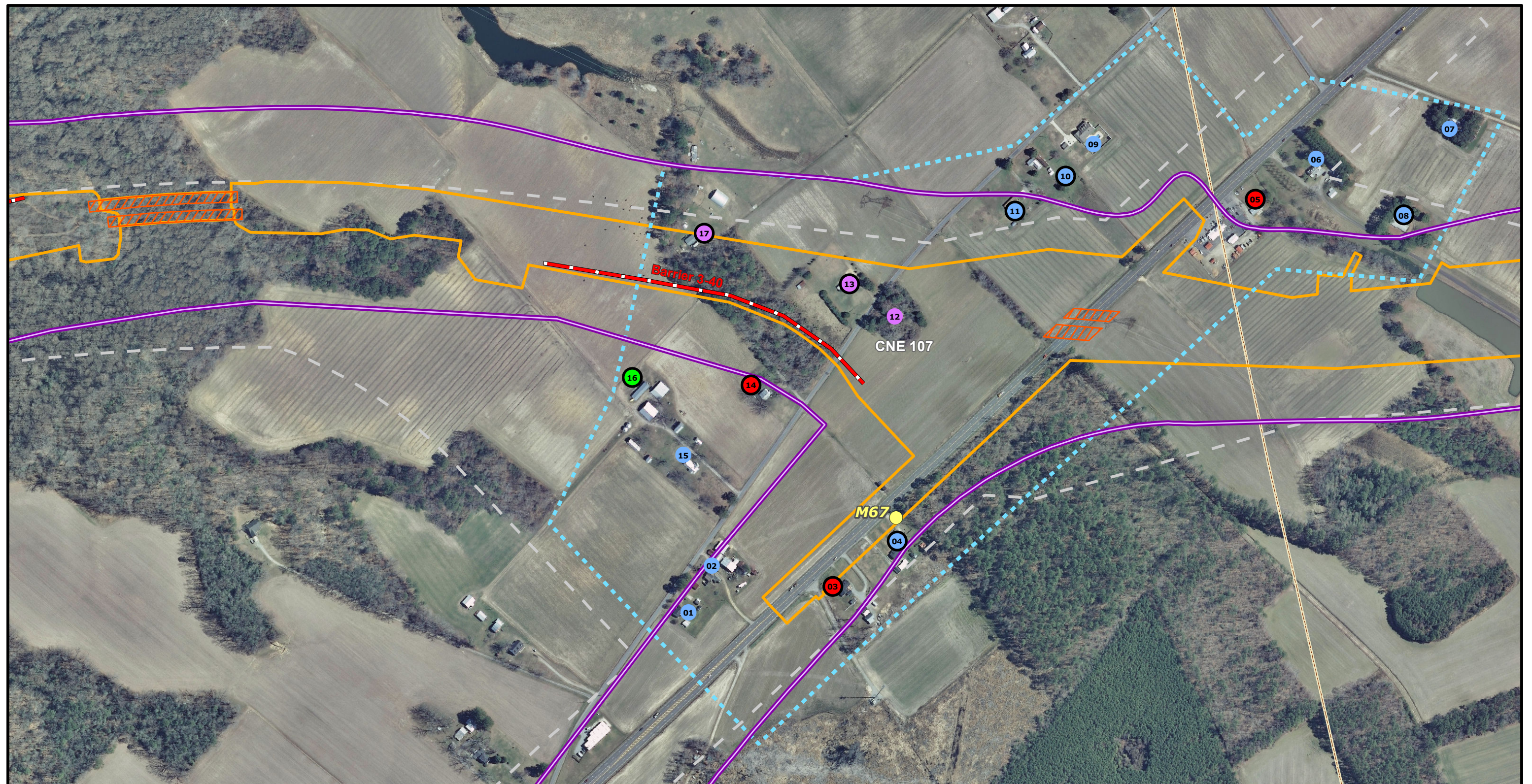
## Figure E-1: Noise Modeling Results Preferred Alternative

Sheet 9 of 17

Route 460 Project Southeast VA  
Supplemental Environmental Impact Statement

Source: VDOT





#### Modeled Receptors

- 01 Impacted and Benefited
- 01 Impacted and Not Benefited
- 01 Not Impacted and Benefited
- 01 Not Impacted and Not Benefited
- 01 Potential Acquisition
- Potentially Different due to Preferred Alternative Shift (to be studied in final design)

- Preferred Alternative, Build Section
- ▨ Proposed Bridge
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- Ambient Monitoring Location
- Potential Barrier: Reasonable & Feasible
- Potential Barrier: Not Reasonable or Feasible

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- County Boundary

Receptor 01 = CNE XXX-01 in report



ROUTE 460 PROJECT  
SOUTHEAST VA  
VDOT

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Southampton County, Isle of Wight County, and City of Suffolk, Virginia

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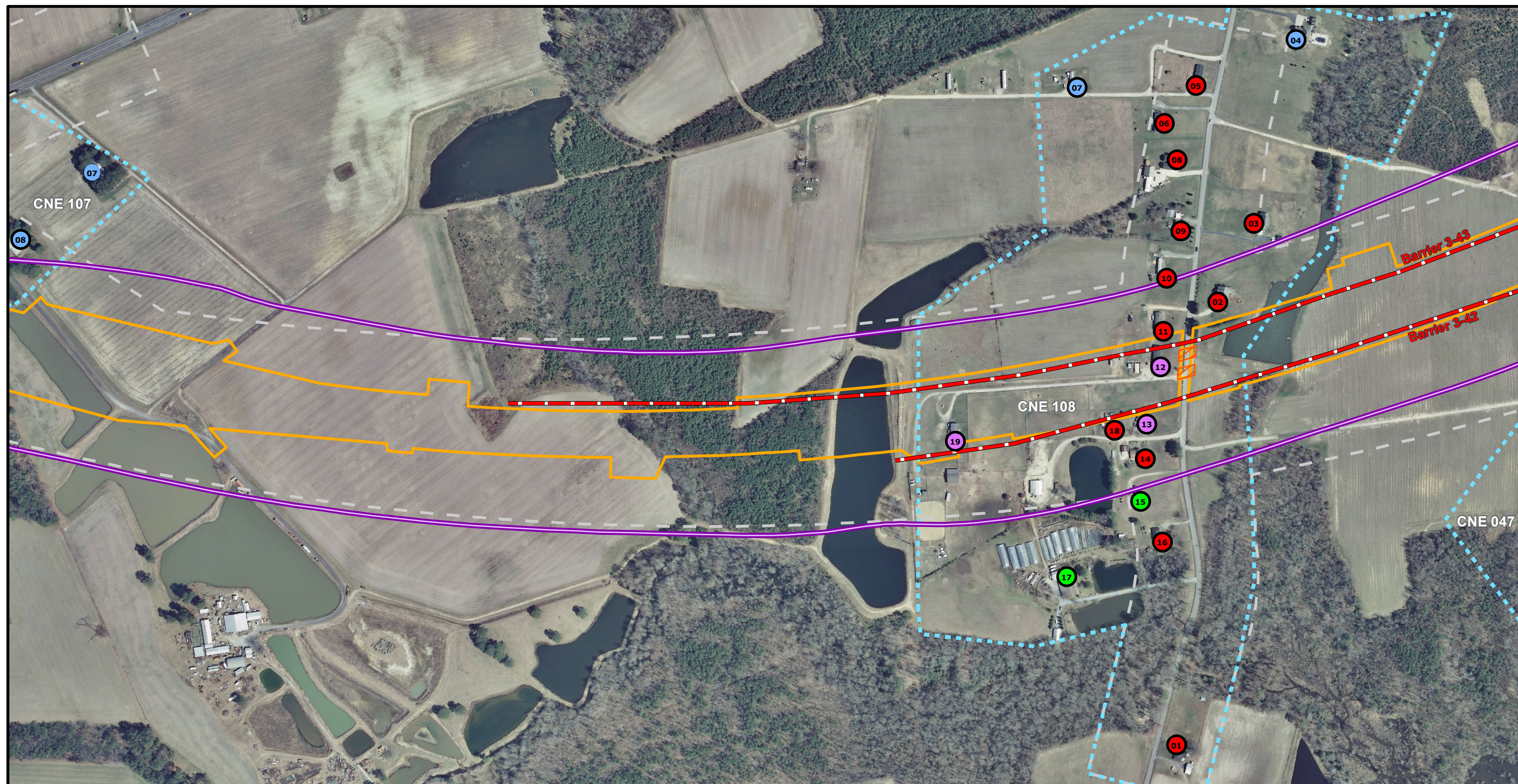
## Figure E-1: Noise Modeling Results Preferred Alternative

Sheet 10 of 17

Route 460 Project Southeast VA  
Supplemental Environmental Impact Statement

Source: VDOT





#### Modeled Receptors

- 01 Impacted and Benefited
- 01 Impacted and Not Benefited
- 01 Not Impacted and Benefited
- 01 Not Impacted and Not Benefited
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- County Boundary

Receptor 01 = CNE XXX-01 in report



ROUTE 460 PROJECT  
SOUTHEAST VA  
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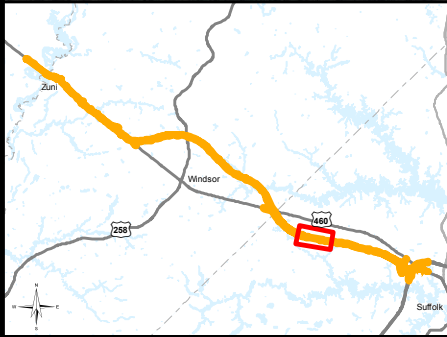
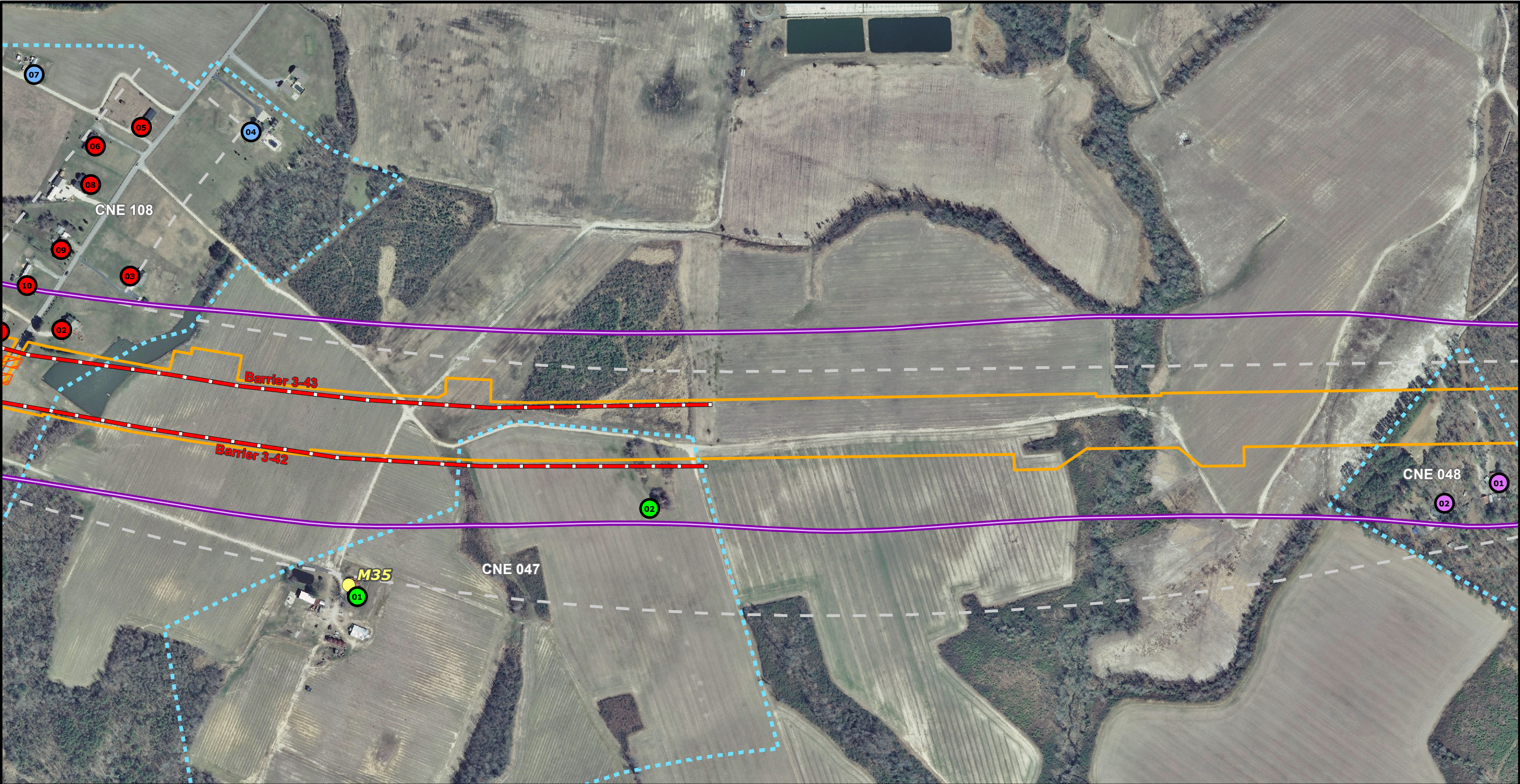
## Figure E-1: Noise Modeling Results Preferred Alternative

Sheet 11 of 17

Route 460 Project Southeast VA  
Supplemental Environmental Impact Statement

Source: VDOT





**Modeled Receptors**

- 01 Impacted and Benefited
- 02 Impacted and Not Benefited
- 03 Not Impacted and Benefited
- 04 Not Impacted and Not Benefited
- 05 Potential Acquisition
- 06 Potentially Different due to Preferred Alternative Shift (to be studied in final design)

- Preferred Alternative, Build Section
- Proposed Bridge
- 66 dBA Contour
- Ambient Monitoring Location
- Potential Barrier: Reasonable & Feasible
- Potential Barrier: Not Reasonable or Feasible

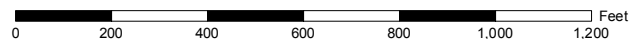
- Common Noise Environment
- Inventory Corridor
- County Boundary

Receptor 01 = CNE XXX-01 in report



ROUTE 460 PROJECT  
SOUTHEAST VA  
VDOT

VDOT Virginia Department of Transportation  
U.S. Route 460 Corridor Improvements Project  
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Southampton County, Isle of Wight County, and City of Suffolk, Virginia



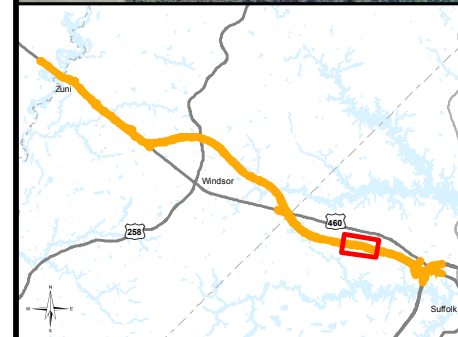
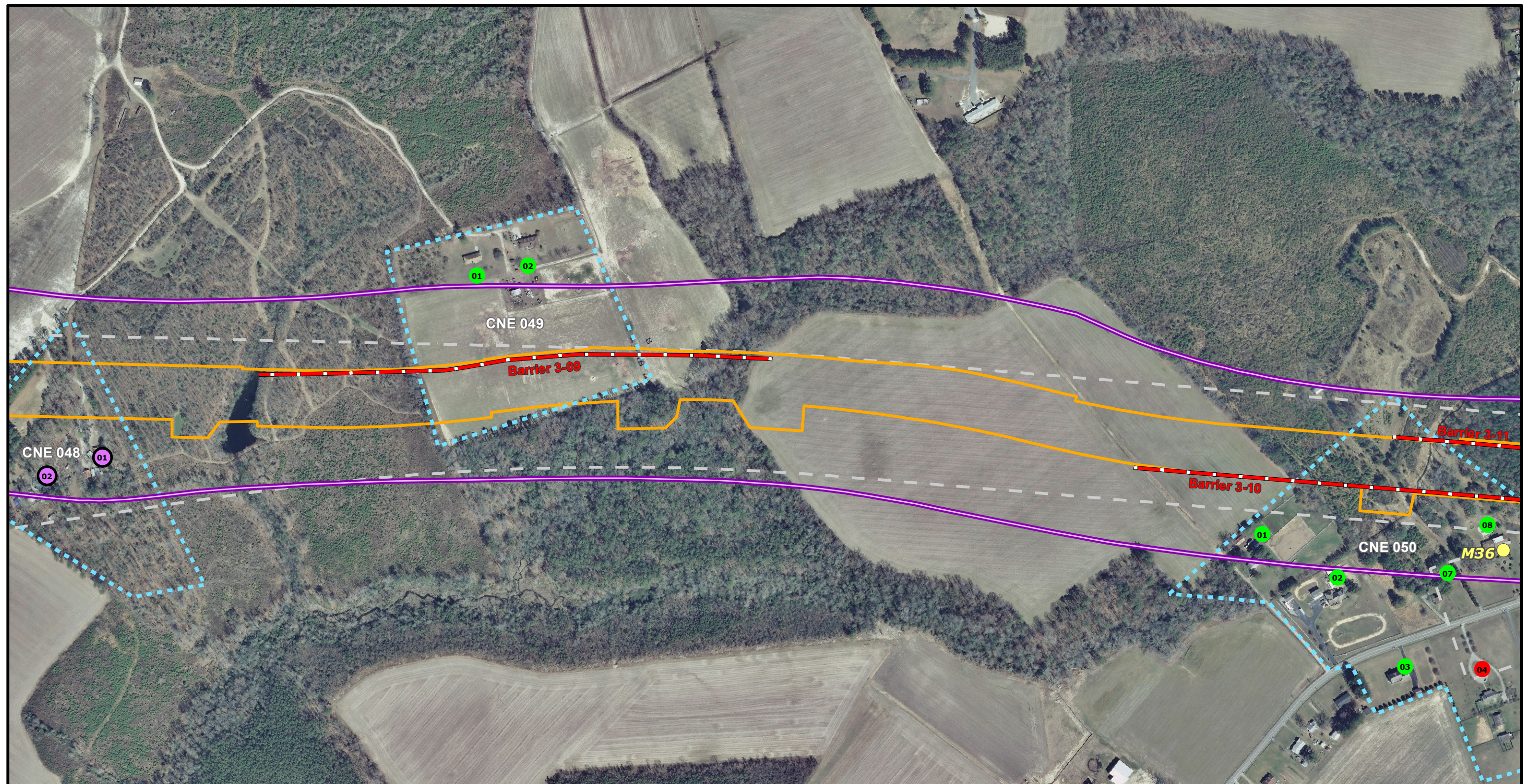
**Figure E-1:  
Noise Modeling Results  
Preferred Alternative**

Sheet 12 of 17

Route 460 Project Southeast VA  
Supplemental Environmental Impact Statement

Source: VDOT





#### Modeled Receptors

- 01 Impacted and Benefited
- 02 Impacted and Not Benefited
- 03 Not Impacted and Benefited
- 04 Not Impacted and Not Benefited
- 05 Potential Acquisition
- 06 Potentially Different due to Preferred Alternative Shift (to be studied in final design)

- Preferred Alternative, Build Section
- Proposed Bridge
- 66 dBA Contour
- Ambient Monitoring Location
- Potential Barrier: Reasonable & Feasible
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- Common Noise Environment
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- County Boundary

Receptor 01 = CNE XXX-01 in report



ROUTE 460 PROJECT  
SOUTHEAST VA  
VDOT

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U.S. Route 460 Corridor Improvements Project  
VDOT Project No.0460-969-007, P101, R201, C501  
Southampton County, Isle of Wight County, and City of Suffolk, Virginia

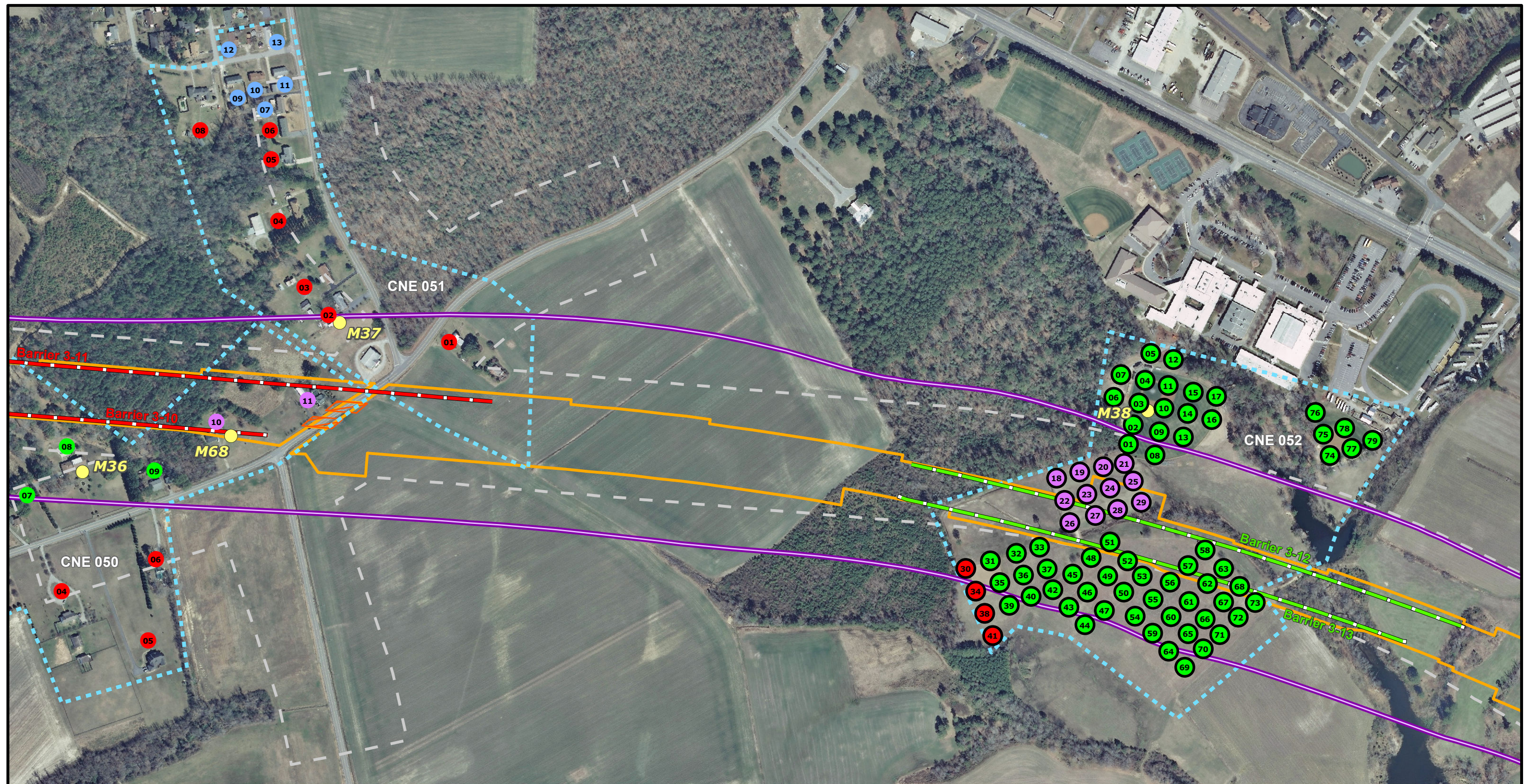
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## Figure E-1: Noise Modeling Results Preferred Alternative

Sheet 13 of 17  
Route 460 Project Southeast VA  
Supplemental Environmental Impact Statement

Source: VDOT





#### Modeled Receptors

- 01 Impacted and Benefited
- 01 Impacted and Not Benefited
- 01 Not Impacted and Benefited
- 01 Not Impacted and Not Benefited
- 01 Potential Acquisition
- Potentially Different due to Preferred Alternative Shift (to be studied in final design)

- Preferred Alternative, Build Section
- Proposed Bridge
- 66 dBA Contour
- Ambient Monitoring Location
- Potential Barrier: Reasonable & Feasible
- Potential Barrier: Not Reasonable or Feasible

- Common Noise Environment
- Inventory Corridor
- County Boundary

Receptor 01 = CNE XXX-01 in report



ROUTE 460 PROJECT  
SOUTHEAST VA  
VDOT

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Southampton County, Isle of Wight County, and City of Suffolk, Virginia

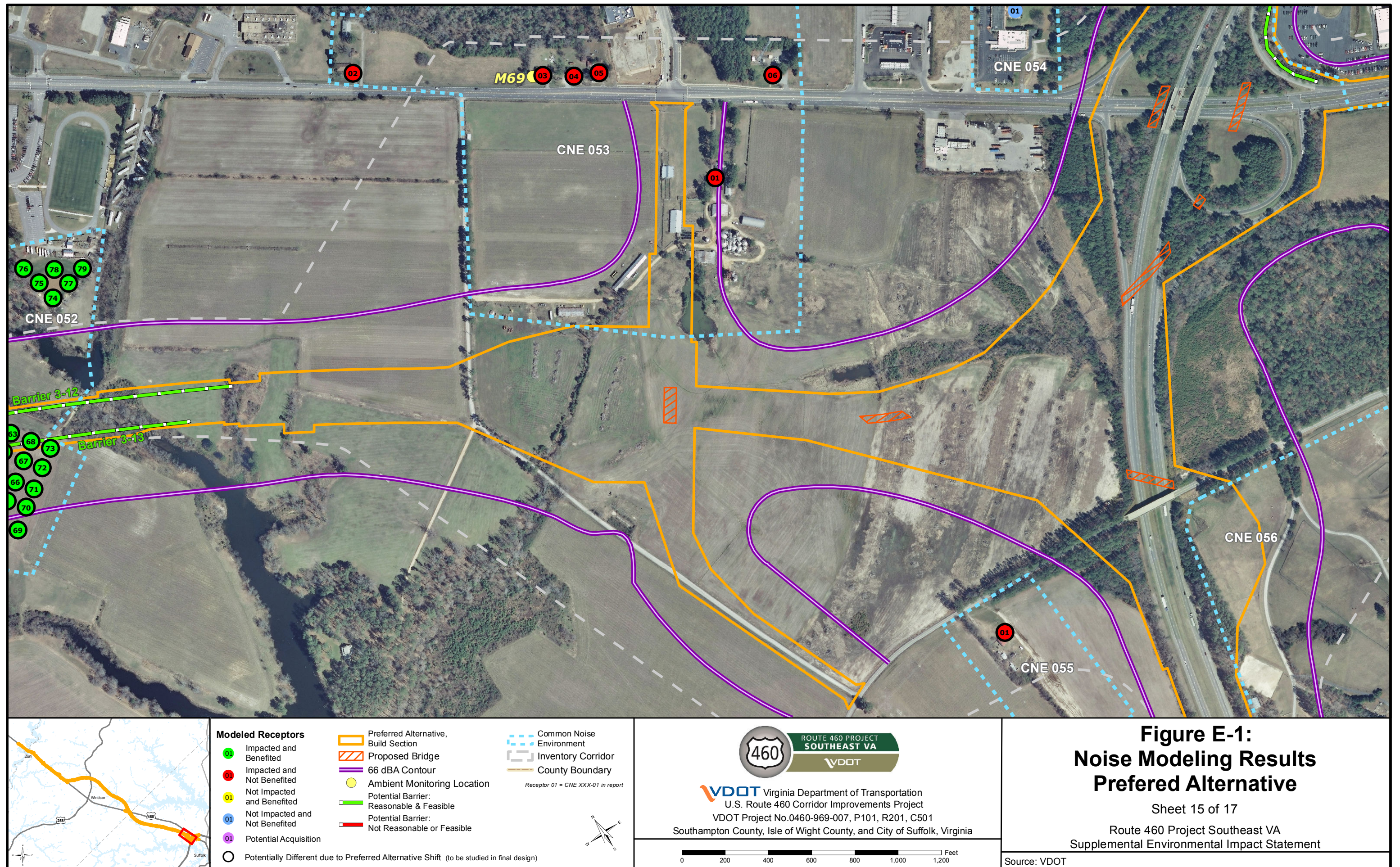
0 200 400 600 800 1,000 1,200 Feet

## Figure E-1: Noise Modeling Results Preferred Alternative

Sheet 14 of 17  
Route 460 Project Southeast VA  
Supplemental Environmental Impact Statement

Source: VDOT



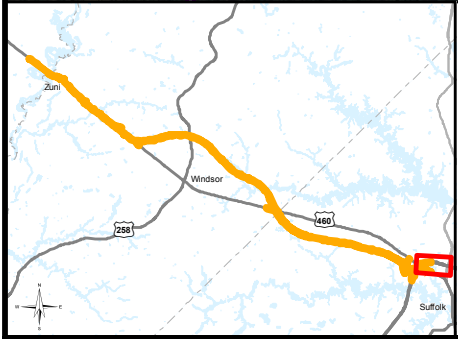
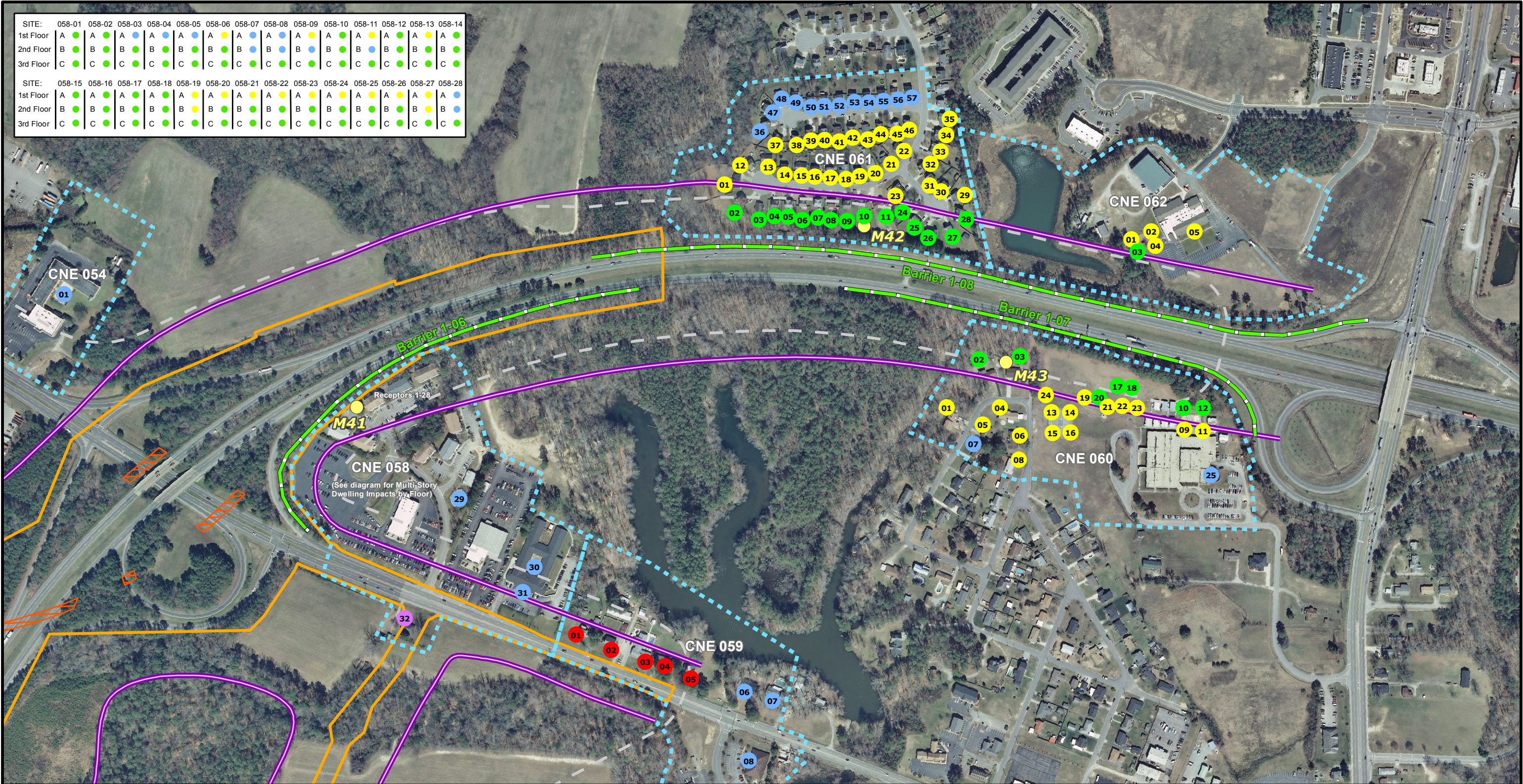




SITE:	058-01	058-02	058-03	058-04	058-05	058-06	058-07	058-08	058-09	058-10	058-11	058-12	058-13	058-14
1st Floor	A	A	A	A	A	A	A	A	A	A	A	A	A	A
2nd Floor	B	B	B	B	B	B	B	B	B	B	B	B	B	B
3rd Floor	C	C	C	C	C	C	C	C	C	C	C	C	C	C

SITE:	058-15	058-16	058-17	058-18	058-19	058-20	058-21	058-22	058-23	058-24	058-25	058-26	058-27	058-28
1st Floor	A	A	A	A	A	A	A	A	A	A	A	A	A	A
2nd Floor	B	B	B	B	B	B	B	B	B	B	B	B	B	B
3rd Floor	C	C	C	C	C	C	C	C	C	C	C	C	C	C



01

Impacted and Benefited

02

Impacted and Not Benefited

03

Not Impacted and Benefited

04

Not Impacted and Not Benefited

05

Potential Acquisition

06

Potentially Different due to Preferred Alternative Shift (to be studied in final design)

Preferred Alternative, Build Section

Proposed Bridge

66 dBA Contour

Ambient Monitoring Location

Potential Barrier: Reasonable & Feasible

Potential Barrier: Not Reasonable or Feasible

Common Noise Environment

Inventory Corridor

County Boundary

Receptor 01 = CNE XXX-01 in report

460

ROUTE 460 PROJECT  
SOUTHEAST VA  
VDOT

VDOT

Virginia Department of Transportation

U.S. Route 460 Corridor Improvements Project

VDOT Project No.0460-969-007, P101, R201, C501

Southampton County, Isle of Wight County, and City of Suffolk, Virginia

0 200 400 600 800 1,000 1,200

Feet

Figure E-1:

Noise Modeling Results

Preferred Alternative

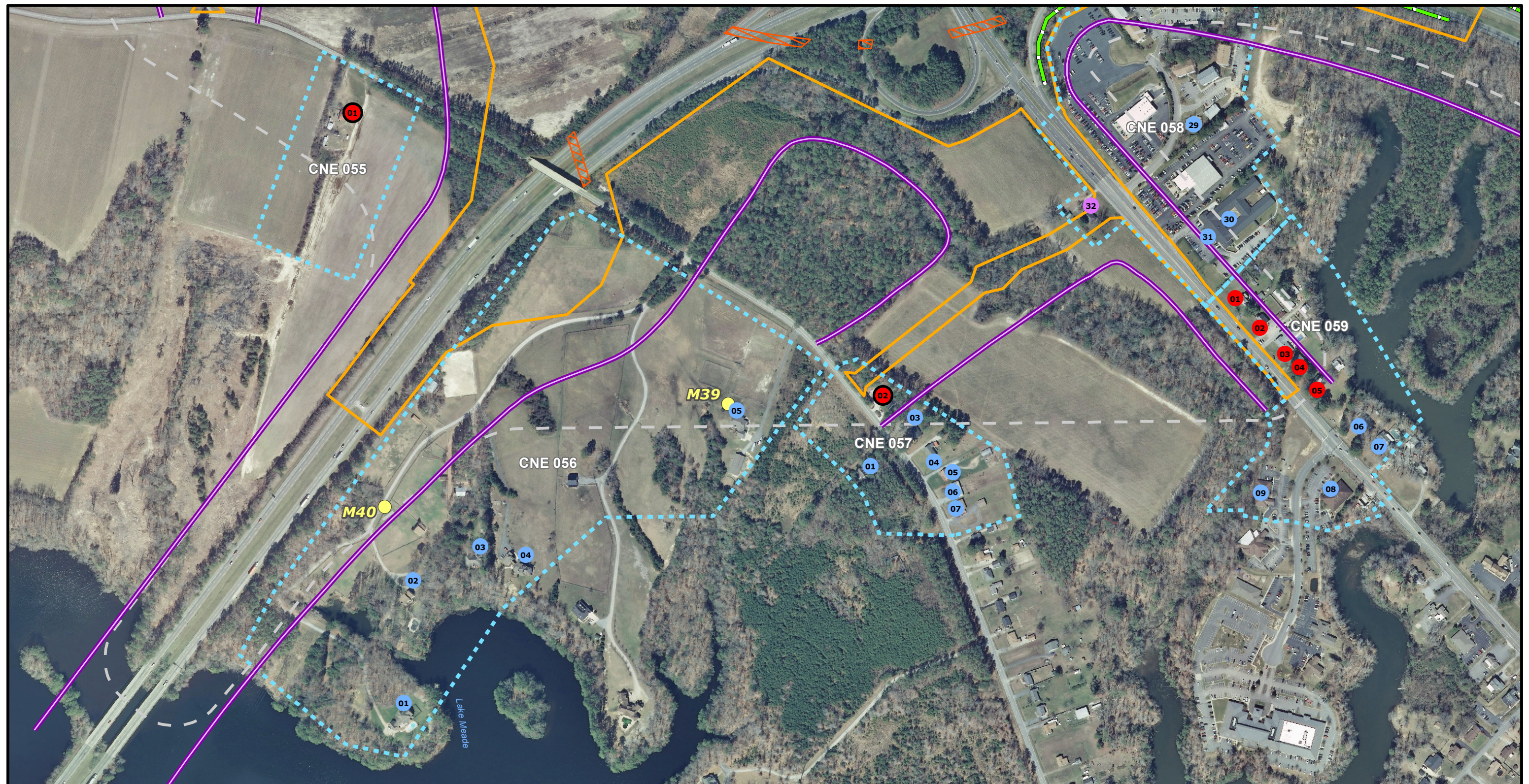
Sheet 16 of 17

Route 460 Project Southeast VA

Supplemental Environmental Impact Statement

Source: VDOT





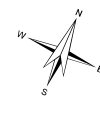
#### Modeled Receptors

- 01 Impacted and Benefited
- 01 Impacted and Not Benefited
- 01 Not Impacted and Benefited
- 01 Not Impacted and Not Benefited
- 01 Potential Acquisition
- Potentially Different due to Preferred Alternative Shift (to be studied in final design)

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Receptor 01 = CNE XXX-01 in report



ROUTE 460 PROJECT  
SOUTHEAST VA  
VDOT

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Southampton County, Isle of Wight County, and City of Suffolk, Virginia

0 200 400 600 800 1,000 1,200 Feet

## Figure E-1: Noise Modeling Results Preferred Alternative

Sheet 17 of 17

Route 460 Project Southeast VA  
Supplemental Environmental Impact Statement

Source: VDOT